

Framework for Promoting Heritage Produce of India

A Playbook for Agro-Forestry Produce

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EXECUTIVE SUMMARY

The Report on ‘Framework for Promoting Heritage Produce of India – A Playbook for Agro-Forestry Produce’ aims to bring strategic focus to India’s agricultural and minor forest produce heritage. The proposed framework is based on deeper ground level value chain analysis of four unique commodity value chains – Mahua (*Madhuca longifolia*), Jamun or Java Plum (*Syzygium cumini*), Galgal (*Citrus pseudolimon* Tanaka) and Kandhamal turmeric (*Curcuma longa* grown in Kandhamal district of Odisha) that together represent broader concerns around sustainability, price realisation, forest and tribal rights and marketability of niche commodities. This framework aims to provide clear actionable recommendations for impactful interventions that can use Heritage agro-forestry produce as an entry point for multiple sectoral interventions along the value chain for better livelihood realisation of producer communities.

India’s ecological diversity and traditional knowledge systems creates an agri-food ecosystem of remarkable richness that gives rise to a wide range of indigenous and heritage commodities that are uniquely adapted to local conditions. Many of these products are nutrient-rich, climate-resilient, and deeply embedded in the cultural and economic lives of the communities that grow, collect, and process them. Several are also geographically distinctive, with some now receiving Geographical Indication (GI) recognition. However, despite their intrinsic value and growing consumer interest many continue to operate at the margins of India’s formal agri-food economy. The challenge is not necessarily one of production, but of knowledge, market access, value-chain infrastructure, technology, product development, and policy support.

India has set herself the target of GI Tagging 10,000 products by 2030. This is the right time to build on this momentum, bring producer groups and state governments on board, and create a national strategy around GI-tagged heritage produce. GI tagging can create an opportunity for India’s distinctive agricultural and food products to move from local recognition to wider markets. But the tag alone cannot deliver this transformation. The next phase needs to focus on what happens after registration: building producer capacity, strengthening infrastructure, ensuring quality, improving market access, adopting technology, and creating mechanisms through which producers and knowledge holders share in the value created. The focus should not only be on how many products receive a GI tag, but on whether the tag creates sustained economic, environmental, and social value for the communities and regions that produce them.

A dedicated policy lens that recognises a category called the Heritage Produce could provide an overarching framework while allowing interventions to be tailored to the specific needs and maturity of individual value chains. This category will sit a step before GI Registration (and other IPR provisions) and will recognize:

Agricultural and forest produce with identifiable, specific characteristics, in particular, those linked to their geographical origin through the interaction between India’s unique terroir and its producers.

Traditional plant varieties that have been cultivated and preserved by local or indigenous farming and forest communities over many generations.

Produce that relies on ancestral and intergenerational knowledge and is valued for its unique taste, genetic diversity, and resilience.

Produce managed through time-tested, ingenious combinations of techniques and practices that have usually led to community food security and the conservation of natural resources and biodiversity.

The Policy will protect the quality and diversity of India's Heritage Produce and give producers a competitive advantage, enabling them to keep traditions and traditional knowledge alive and preserve the country's living cultural and gastronomic heritage. The Policy will also support original producers, artisans, distributors, retailers, and others involved in the GI value chain, while enhancing consumer trust and protecting consumer interests. Rather than treating these commodities simply as another category of agricultural produce, policy needs to recognize them as strategic heritage and emerging economic assets with implications for rural livelihoods, nutrition, climate resilience, women's economic participation, import substitution, and exports.

This proposed policy framework would need an institutional framework that can support a modern, tech-led approach through inter-ministerial and inter-departmental coordination, stakeholder engagement, monitoring of results, documentation of best practices, and analysis of key policy and budgetary frameworks. As one of the primary objectives of the Policy is to provide a framework for livelihood realization through the marketing and trade of high-value Heritage Produce, it is suggested that the Policy be placed under the Ministry of Commerce (MoC), with inter-ministerial and inter-departmental committees responsible for planning, execution, and monitoring. MoC should identify a single accountable nodal agency with a budget line and build on existing institutions that already have a track record in delivering the core pillars, such as APEDA for exports and TRIFED for MFPs. Further, Task Teams should be formed by the State for grassroots planning, execution, and monitoring of long-term outcomes and short- to medium-term deliverables under the Policy.

The Heritage Produce Policy would require an agile and innovative financing framework that can respond to the diverse, dispersed, and nascent characteristics of value chains and producers. It is suggested that a Financial Framework to support the Policy be placed under NABARD, preferably with the creation of a specialized lending framework, preceded by the formation of special 'Crack Teams' jointly by NABARD and Commodity Boards/ TRIFED/ Agriculture Departments to investigate produce-specific financial models for Heritage Produce. This will enable crop-specific financing that is better targeted to the category, with possible instruments like first-loss guarantee cover, warehouse receipt financing, and buyer-linked credit. Digital monitoring tools, along with the involvement of JFMCs/FCOs/SHGs, can be used for due diligence and loan monitoring.

Development Finance Institutions (DFI) and bilateral and multilateral banks and organizations should be invited to participate in the Committees and Task Teams on a need-basis to bring in finance and knowledge that support the plans and schemes under the Policy.

Some of the priority recommendations under the framework are:

Initiate multi-stakeholder consultations under the Ministry of Commerce to finalize the Policy, institutional framework, and related Acts, starting with inter-departmental and civil society consultations in the States and culminating in a series of consultations at the Centre. Prioritize Heritage Produce for GI tagging based on value chain strength, preparedness, and conservation status.

Conduct commodity-led studies, including documentation of indigenous and traditional knowledge, and gastronomic, cultural, and medicinal heritage, under the Heritage Produce Knowledge Mission.

Set up research missions under ICAR- and DST-led institutions to establish quality parameters and standards.

Set up specialized incubation programs in States for Heritage Produce to support entrepreneurship development and enhance livelihood gains in the farming, minor forest produce, and food sectors.

Include Heritage Produce in the curriculum of hospitality and catering schools and universities in India to increase its adoption in the Indian HORECA industry and among Indian restaurants and suppliers in India and abroad, while conserving India's gastronomic heritage.

Tap into livelihoods, skilling, and gender empowerment programs offered by donors/ FIs, alongside CSR funds of corporations working in sensitive areas and/ or geographies producing Heritage Produce.

Establish a Centre for Excellence on Heritage Produce within an existing institution or as a new institution to drive innovation, support research, produce and disseminate knowledge, and coordinate activities under the Policy.

It is proposed that the framework uses existing institutions and applies heritage produce as an entry point in existing schemes/activities, wherever applicable. To the extent possible, additional layers and institutions should be created only for purposes of better coordination and plugging in key gaps.



INTRODUCTION AND SITUATION ANALYSIS

India's ecological diversity, spanning 15 agro-climatic zones, has created an agri-food ecosystem of remarkable richness. Across the country, diverse landscapes, soils, climates, and traditional knowledge systems have given rise to a wide range of indigenous and heritage commodities that are uniquely adapted to local conditions. Many of these products are nutrient-rich, climate-resilient, and deeply embedded in the cultural and economic lives of the communities that grow, collect, and process them. Several are also geographically distinctive, with some now receiving Geographical Indication (GI) recognition.

However, despite their intrinsic value and growing consumer interest in authentic, nutritious, locally rooted, and sustainably produced foods, many continue to operate at the margins of India's formal agri-food economy. The challenge is not necessarily one of production, but of knowledge, market access, value-chain infrastructure, technology, product development, and policy support.

One of the most significant constraints is the knowledge and awareness gap. Consumers, businesses, and even value-chain actors have limited awareness of the diversity, nutritional properties, and potential applications of India's indigenous commodities. Occasionally, individual products such as makhana (foxnuts) gain national and international attention and successfully transition from being a traditional ingredient to a mainstream commercial product. But these examples remain exceptions rather than part of a sustained ecosystem for identifying, developing, and scaling India's heritage foods.

The challenge is compounded by weak and fragmented value chains. Many commodities, particularly forest produce and products with short harvesting windows, are highly perishable and move through informal and localized markets. Limited aggregation, storage, processing, logistics, quality assurance, branding, and market linkages restrict their ability to reach larger and more consistent consumer markets. As a result, producers often capture only a small share of the eventual value, while significant quantities of potentially high-value and nutritious produce are lost or sold at low prices.

Consumers, however, are increasingly seeking foods that are niche, authentic, nutritious, locally rooted, and environmentally responsible. This creates an opportunity to connect emerging demand with India's underutilized indigenous supply: The opportunity not simply to promote individual commodities, but to build an integrated ecosystem for their identification, aggregation, processing, innovation, production, branding, and market development, creating value for producers, entrepreneurs, consumers, and the wider economy.

The diversity of these commodities presents a policy challenge. They are geographically dispersed, differ considerably in their production systems and market maturity, and face commodity-specific constraints. Yet, they share a set of characteristics that warrant recognition within a common policy framework: Cultural and heritage value, strong community linkages, nutritional significance, local ecological adaptation, and potential climate resilience.

A dedicated policy lens could provide an overarching framework while allowing interventions to be tailored to the specific needs and maturity of individual value chains. Rather than treating these commodities simply as another category of agricultural produce, policy needs to recognize them as strategic heritage and emerging economic assets with implications for rural livelihoods, nutrition, climate resilience, women's economic participation, import substitution, and exports.

Such an approach is particularly important because the existing policy and market ecosystem does not always translate recognition into equitable economic outcomes. GI certification, for example, has helped create visibility for several indigenous products, but its benefits have not been uniform. Certification needs to be complemented by market development, traceability, producer institutions, branding, processing, and stronger benefit-sharing mechanisms.

These value chains are also increasingly vulnerable to climate change and ecological disruption. Changes in rainfall patterns, temperature, and seasonality can directly affect flowering, harvesting, and yields. The experience of jamun growers and collectors in Maharashtra, where unseasonal rainfall has affected flowering and harvest cycles, illustrates the vulnerability of traditional commodities to changing climatic conditions. Climate adaptation therefore needs to become an integral part of value-chain development.

There is also a significant gender dimension. Women are often central to the collection, primary processing, and preparation of heritage and forest-based commodities, and many of these activities remain labor-intensive and technologically underserved. Investment in appropriate technologies and processing infrastructure can reduce drudgery while improving productivity, incomes, and women's participation in higher-value segments of the chain.

Most importantly, these commodities represent a close relationship between land, ecology, traditional knowledge, and communities. Interventions that alter cropping patterns or local production systems without understanding this interdependence can have unintended social and ecological consequences. The changes in cropping patterns in Kandhamal, Odisha, a region renowned for GI-tagged turmeric, following the introduction of maize-focused agricultural interventions illustrate the need to assess the wider implications of policy and market interventions on heritage value chains.

A STRATEGIC OPPORTUNITY FOR INDIA

Strengthening these value chains presents an opportunity that extends well beyond agriculture. It can contribute to several national priorities simultaneously.

First, indigenous commodities can contribute to import substitution. India has significant potential to replace selected imported ingredients and raw materials with locally produced alternatives. Indigenous oilseeds, for example, warrant greater attention given India's substantial edible-oil import dependence. Similarly, mahua-based products have demonstrated potential as alternatives to imported ingredients such as maple syrup, while mahua resins and indigenous dry fruits offer opportunities in other food and non-food applications. In several cases, the issue is less about creating production capacity and more about developing the products, markets, and commercial models required to unlock existing domestic supply.

Second, stronger value chains can improve rural and community incomes. Many indigenous commodities are produced, collected, or processed by smallholders, forest-dependent communities, women, and Adivasi population who remain relatively peripheral to formal agricultural markets. Building reliable supply chains, producer institutions, processing capacity, and market linkages can help shift these communities from primarily supplying raw materials to participating in higher-value segments of the economy. At the same time, converting nutrient-rich indigenous produce into contemporary products can create healthier food choices for India's rapidly urbanizing population. Jamun strips and jams, for example, illustrate how value addition can create both economic opportunities for producers and new choices for urban consumers. Tribalveda, a startup focused on creating jamun-based products, is an example of this emerging model.

Third, these commodities offer an opportunity to diversify India's export basket and strengthen India's food identity globally. India's agricultural exports are understandably dominated by large-volume commodities such as rice, wheat, and sugar. However, there is an opportunity to complement this scale-driven export model with a distinctive, value-driven portfolio of Indian heritage foods and ingredients. Products such as galgal, jamun, mahua, and other indigenous fruits, berries, spices, and seeds have the potential to become globally recognized Indian products.

This also creates an opportunity for food diplomacy and global positioning. India's unique food heritage, biodiversity, and traditional knowledge can become an important component of its soft power and economic

diplomacy, particularly as global consumers increasingly seek foods with provenance, authenticity, and nutritional value.

The opportunity, therefore, is to move from sporadic promotion of individual products to a systemic approach to developing India's indigenous and heritage commodities. This would require a combination of policy recognition, market intelligence, research and innovation, climate adaptation, technology, producer aggregation, value-chain infrastructure, product development, branding, and domestic and export market creation.

A dedicated policy framework for indigenous commodities can provide this common architecture while retaining the flexibility required for commodity- and geography-specific action. Such a framework can help India protect and strengthen the relationship between communities, culture, ecology, and food while simultaneously transforming underutilized indigenous resources into engines of inclusive economic growth, healthier consumption, resilient livelihoods, and a more diversified global food economy.



Occasionally, individual products such as makhana gain national and international attention



Indigenous oilseeds warrant greater attention given India's edible-oil import dependence



GI TAGGING IN AGRO-FORESTRY COMMODITIES



CONTEXT

GEOGRAPHICAL INDICATION (GI) EMERGED FROM THE WORLD TRADE ORGANIZATION'S (WTO) TRIPS AGREEMENT (TRADE-RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS) OF 1995. AS PER ARTICLE 22 OF THE AGREEMENT:

“Geographical indications are, for the purposes of this Agreement, 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 states that geographical indications have to be protected to avoid misleading the public and to prevent unfair competition. The purpose of GI, therefore, is to protect the uniqueness of a region's produce and the commercial value that comes from it

In India, registration and protection of GI tag and Italy; Salem sago from Salem, Tamil Nadu, to Canada; Raja mirch from Nagaland to London; Rewa Sundarja mangoes from Madhya Pradesh to the UAE; Karbi Anglong ginger to London; and the first consignment of Mithila makhana to Dubai via sea route.

India's Free Trade Agreements (FTAs) have also opened new avenues for its GI produce. Indi lime from Karnataka was exported to Oman in 2025 after the signing of the India-Oman CEPA. New Zealand has committed to enabling the registration of Indian GI products. Negotiations around GI are also part of the India-European Union FTA.

This is the right time to build on this momentum, bring state governments on board, and create a national strategy around GI-tagged heritage produce. Opening new markets is one part of the solution. Ensuring a consistent, high-quality supply of produce needs equal attention. Most GI-tagged commodities need capacity-building interventions across the value chain — from seed and quality of produce to traceability, storage, and consistent year-round supply.

KEY CONCERNS

Lack of scientific research

Both from a cultural and livelihood perspective, mahua is one of the most critical commodities that is yet to be GI tagged. It is found in nearly 16 states, but there has been no study into its varieties and their properties. Scientific data should form the basis of GI tag applications. In the absence of research and data, the entire process is slowed down.

There is a need to define a pre-application process in which commodities are longlisted based on well-defined criteria. A strategic identification plan needs to rank commodities on cultural, commercial, and uniqueness parameters to help shortlist products for deeper scientific research.

Low number of authorized users

Mohit Sharma, Assistant Professor of Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar, and Pavithra S., Senior Scientist, ICAR–National Institute of Agricultural Economics and Policy Research (ICAR–NIAP), New Delhi, point out that most registered GIs in India still have zero authorized users.

Basmati rice, India's most commercially successful GI product, has only 1,964 authorized users, even though India exported 52.42 lakh metric tonnes of Basmati rice worth INR 48,389.18 crore during 2023–24. As of January 2025, India had a total of 29,000 authorized users for GI tags.

They also draw attention to the overall low number of registered GIs in India. China, for example, accounts for nearly 9,800 registered GIs compared to over 800 registered GI products in India.

Quality control

GI tags have come to be seen as a symbol of authenticity and high quality. But there are enough examples from the handloom sector to show that market pressure, infringements, and cheaper versions flooding the market can bring down consumer confidence and force original producers to compromise on quality.

Yogesh Pai and Tania Singla have argued that India's GI regime has ignored the introduction of quality-control and maintenance measures, resulting in a system of 'Vanity GIs,' where registration of GIs is seen as an end in itself.

The GI Act requires the applicant to identify an 'Inspection Body,' which is responsible for quality control of the products. However, this is not mandatory for the approval of the application.

"The current legislative framework has no teeth as there is no statutory liability imposed on inspection bodies under the current Act in the event that they fail to conduct periodic verification of compliance with the product specifications of the associated GI."

Limited participation from large corporates

What made all large Indian food corporations take to California almonds so quickly? What keeps them from adopting GI as a category with equal fervor?

The most significant players in the GI agri-food ecosystem are startups or niche companies. Some of them, like KisaanSay, ekgaon, Earth Story Farms, and Amal Farms, are doing incredible work, but the consumer base has remained small.

HORECA and culinary schools

Hotels and restaurants do more than move volumes when it comes to food ingredients. They get a large segment of consumers to experience and adopt new products and create aspirational categories.

Culinary schools create the next batch of chefs, who decide not just what is cooked in commercial kitchens but also influence home chefs and consumers through social media.

Currently, India's agrobiodiversity and heritage produce remain largely confined to niche restaurants and do not find sufficient mention in hospitality management curricula.

Missing innovation ecosystem and technology adoption

There is a lot of good work happening in the Indian agri-food ecosystem. GI-tagged produce is yet to appeal to innovators as a segment. Small-scale producers, non-aggregated value chains, and a lack of assured premium markets are a few factors affecting innovation adoption in these sectors.

When the produce comes from forests and the primary producers are Adivasi communities, these challenges are even more pronounced. A few startups, such as Tribalveda, which works on jamun, have integrated income augmentation, women's employment, and Adivasi community engagement as part of their core objectives, but such initiatives are few.

Apart from tea, turmeric, and a few others, modern technologies such as traceability are yet to be adopted across many of these product value chains. Many of the GI product ecosystems are still small, financially non-viable, and cooperatives do not have the wherewithal to invest in digital technologies.

Digital Empowerment Foundation (DEF) is working with artisans engaged in GI-tagged crafts such as Pattamadai pai and offering training sessions designed specifically to meet the unique needs of artisan communities, addressing their craft, local context, and market challenges.⁸ Such initiatives need to be replicated in agri-food, where, no matter how small the clusters, their mechanical and digital technology requirements are studied and met.

Sustainability

In Kandhamal, this study found that there is no definite data on the availability of the original seeds, and seed conservation is still not a key concern.

Post-GI framework

A well-designed and implemented GI framework should address both the cultural and commercial aspects of a commodity. Getting the GI tag should only be seen as the first step in a programme that seeks complete value-chain upgrading.

Policymakers should not see GI registration as a goal in itself. A promotion and protection plan should be prepared at the time of application filing itself.

GI tagging needs to be seen as a framework. Ideally, the framework should be able to:

- Identify commodities that have intrinsic value and future commercial potential and need protection.
- Ensure that the right organizations, with the wherewithal to implement a GI framework, file for certification. Support for fact-based research and application submission should be provided.
- Build a benefit-sharing model that is accessible and equitable to growers, traders, and other value-chain partners. The intended beneficiaries, in most instances, are either unaware of the benefits, such as higher remuneration for growers, or do not know of redressal mechanisms when deprived of them. Training needs to be imparted to increase awareness, encourage better growing practices, build capacity, and impart pride in being part of an elevated value chain.
- Build a system to protect against infringement.

The need for a benefit-sharing model

Post-GI tagging, producers of GI commodities must benefit in a visible, provable, and sustainable manner. This instills pride in the farming community, retains existing producers, and attracts more producers from the region. It also ensures that the output of the produce is either retained or grows in the long term.

A well-designed benefit-sharing model ensures that everybody who is part of the value chain benefits from the exploitation of the product. If the GI tag results in the produce getting a premium in the market, the benefit-sharing model ensures that the small farmer or forest-dwelling community that holds the knowledge behind the product is not left out of the returns.

A benefit-sharing model needs the following:

- Clear identification of growers and knowledge holders.
- A legal vehicle for the community: a trust, a cooperative, or any other registered institution.
- A clear structure of how the benefit is going to flow.
- A degree of autonomy for the community in controlling decisions.

- A well-structured equity mechanism within the community, depending on their role in the process.

Non-monetary benefits such as access, infrastructure, market linkages, and healthcare should also be worked out.

The GOI has recently shared success stories. In the case of Muzaffarnagar jaggery, tagging has opened global markets and increased the prospect of farmer incomes. The export of Tezpur litchi delivered approximately 10% higher prices for growers, while the export of mangoes to the Maldives resulted in 40–50 percent higher returns for farmers in Karnataka.

There is a need to study how such higher returns were generated, how much of the increase went to farmers, and how such lessons can be applied in the value chains of other GI-tagged commodities. With the target of 10,000 GI-tagged products by 2030 that India has set for itself, it is time to understand and implement benefit-sharing protocols that can be fine-tuned with new learnings from individual value chains.

The Geographical Indications of Goods (Registration and Protection) Act, 1999, does not address benefit sharing. The time is right to make a benefit-sharing protocol part of the legal framework.

RECOMMENDATIONS

Commodity identification

The process of commodity selection for GI tagging should be objective and transparent. Unlike the case of patents, there is no prohibitive cost involved in GI tagging. However, there should be absolute clarity on what makes a commodity GI-ready and what its future path looks like.

Three questions should guide the selection process:

- Is there a quality or characteristic attributable to the product that is tied to a specific place, or can it be grown anywhere else?
- Is there an identifiable producer community? If the community is not organized, is it possible to create a producer community or organization?
- Is the market willing to pay a premium for an authenticated product? If not, can a consumer base be built that is willing to pay a premium?

During this study, it was noted that there can be other factors that influence these decisions. Galgal from Himachal Pradesh and Uttarakhand is a good example. A combination of factors —lack of research and scientific data, not enough interest and awareness in policy circles, and general indifference among consumers — has kept the commodity from being utilized better.

In the case of mahua, despite the increased interest among many state governments, there is institutional apathy and a lack of scientific data.

The first task, therefore, is to prepare a long list of commodities that meet the above criteria and then undertake scientific research to identify key characteristics that go beyond commonly understood ones.

Investment in infrastructure

Given the buzz around GI tagging, such commodities have the potential for greater market access and consumer acceptance. For this interest to be sustained, both high quality and consistent year-round supply need to be ensured.

This study found that most of the GI-tagged turmeric in Kandhamal is sold in bulk. There are minimal processing facilities in the district, resulting in a lost opportunity for value addition and employment generation.

In Badlapur, the GI tag has resulted in increased interest in planting more jamun trees.¹⁰ Balasaheb Sawant Konkan Agricultural University has expressed interest in setting up an Urban Agriculture Research Centre to focus on jambhol conservation.

There is a need to set up jamun processing centers that can be used by local entrepreneurs, while also inviting established jamun-focused companies such as Tribalveda to co-develop these facilities.

There is also a need to study the market demand and potential uses of an ingredient in different sectors: HORECA, food processing, retail, pharmaceutical, and cosmetic. With non-demand-driven processing units, there is always the risk of non- or under-utilization.

This is why, whether it is cold chains or processing units, commodity-specific studies should inform the commodity-wise infrastructure development plan.

Disputes & redressal

Currently, in cases of GI-tag infringement, the party has to go to court and file a civil case. With the rapid increase in GI-tagged commodities, there is a need for a redressal mechanism and a dedicated GI authority to settle disputes.

At times, it may happen that what is considered a unique produce of a region may fall under two different states. In such instances, disputes may arise, and there needs to be a mechanism to address them.

Climate readiness

Climate change adversely affects many GI-tagged products in India. Aditya Kumar Tomar, Razit Sharma, and Ram Karan Singh from The ICFAI University, Dehradun, conducted a study to examine how climate variability impacts GI product quality, yield, and market viability.

Their analysis covered Cumbum Paneer grapes, Authoor betel leaves, Sholavandhan betel leaves, Kanyakumari Matti banana, Navara rice, and Palakkadan Matta rice.

The study noted climate impact on these crops and recommended post-registration monitoring systems and climate adaptation support mechanisms. The study recommends:

- Formalized monitoring of climate variables and product quality.
- Support for climate-smart agricultural practices that prioritize product quality.
- Enhanced policy instruments integrating climate resilience into GI governance.

Conclusion

GI tagging can create an opportunity for India's distinctive agricultural and food products to move from local recognition to wider markets. But the tag alone cannot deliver this transformation.

The next phase needs to focus on what happens after registration: building producer capacity, strengthening infrastructure, ensuring quality, improving market access, adopting technology, and creating mechanisms through which producers and knowledge holders share in the value created.

With India working towards 10,000 GI registrations by 2030, the focus should not only be on how many products receive a GI tag, but on whether the tag creates sustained economic, environmental, and social value for the communities and regions that produce them.



**STRUCTURE OF THE
STUDY:
METHODOLOGY &
RATIONALE**



The approach

The project studied 4 value chains: Galgal, Turmeric, Mahua and Jamun. In addition to the study of these commodity verticals, the project also had four horizontal pillars:

1. Intellectual property & GI certification framework
2. The retail network
3. Sustainability, Technology & Green Interventions
4. Positioning & storytelling

Together these eight pillars informed the approach and content of the project. They have been chosen to enable us to cover all aspects of the commodity value chain and engage with all major stakeholders involved in it.

Secondary research

Extensive secondary research was conducted to understand the existing ecosystem in non-timber forest products (NTFPs); relevant commodity value chains, differences in state policy and GI framework.

Primary research

Primary research was conducted through a combination of these methods:

1. Regional consultations
2. Focus group discussions
3. Field Studies
4. Key informant interviews
5. Questionnaires

First regional consultation was held in Bhubaneswar, Odisha in partnership with Atal Innovation Center at CV Raman Global University for turmeric, jamun and mahua. The consultation was attended by more than twenty organizations, including state government, like Additional Secretary from Mission Subhadra, Deputy CEO of ORMAS and consultant from Department of Forests among others.

Second regional consultation was held in Dehradun for Galgal

Field study was conducted in Jharkhand for Mahua and covered collection sites at Giridih and Jonha. Meetings were conducted with mahua collectors, community at large and with startups Wild Harvest and The Open Field. Meeting was also conducted with state government agency – SIDHKOFED.

Field study for turmeric was conducted in Kandhamal, Odisha. Meetings were conducted with farmer co-operative KASAM and with multiple traders. Major retail outlets in the area were studied too.

FGDs were conducted with HORECA stakeholders in Hyderabad.

KIIs were conducted with intellectual property experts, chefs, food startup founders and technology professionals. For jamun, KII was conducted with team of Tribalveda.

Questionnaires were created for each commodity as well as retail, technology and HORECA sectors. Close to 50 responses were received across all categories.



MAHUA: CONTEXT AND RATIONALE

Mahua is unique in the Indian context in multiple ways. Few forest products have such a wide geographic presence; mahua grows in nearly 16 states. It sits at the intersection of agriculture and culture rather than being a purely commercial crop.

Each summer, the mahua tree transforms the forest floor with its small, cream-colored, fragrant flowers that fall in abundance during the lean months, creating a seasonal harvest that has supported Adivasi communities for generations. Collected by hand at dawn, the flowers become food, income, medicine, and a link to cultural traditions passed down through generations.

Many indigenous tribes consider this flower to be sacred. They have rituals, poems, stories, art forms, and myths created around the tree. It has a rich history in indigenous knowledge systems of central India.¹

Mahua also has economic significance. In many areas, ownership is hereditary, and a single tree can help families earn up to INR 1,500 per season. In many areas of Jharkhand, one of the states where mahua is almost a way of life, earnings from the flower alone can account for up to 30 percent of an Adivasi household's annual income.

Mahua also has ecological significance. It thrives in dry, tropical forests of the subcontinent and can grow on degraded land. It is critical to the forest ecosystem and can survive drought conditions. As a sustainable source of nutrition, much of which is wasted on the forest floor, it has the potential to transform both urban and rural food and nutritional security.

The leaves, seed oil, bark, and fruits of the mahua tree are used to treat different conditions, including tuberculosis, rheumatoid arthritis, cholera, paralysis, snake bites, debility, tonsillitis, influenza, piles, arthritic pain, helminthiasis, headache, flatulence, and infections. Mahua is also widely consumed as a nourishing food, and many regions have their own generational recipes.

It is also one of the most prominent non-timber forest products (NTFPs), and yet mahua is an undervalued commodity. Despite being such a widely available forest product, it remains unknown to most Indians, and the value chain has remained unchanged and inadequate over decades.

Historically, mahua's significance was most visible during periods of acute food stress: in colonial-era Chotanagpur, mahua flowers served as a critical famine food, with Adivasi communities relying on them as a dietary staple, particularly in the lean months between harvests. Ecka's analysis of the 1896–97 famine demonstrates the dual character of mahua as a livelihood resource: Years of abundant flowering measurably softened the severity of distress and reduced dependence on relief work, while partial crop failure driven by untimely rains intensified famine conditions, drove up grain prices, and triggered distress migration, illustrating mahua's role as both a buffer against and an amplifier of agrarian vulnerability.⁵

In the context of evolving modern diets and the constant search for sustainable, high-nutrition foods with hyperlocal cultural stories to back them, mahua is everything that the modern consumer needs. It is organic, nutritious, indigenous, and tells a story. The failure, so far, to achieve wider reach and acceptance of mahua needs to be studied. The lessons can provide a model framework for other forest produce.

COLLECTION, VARIETAL DIVERSITY, AND NUTRITIONAL PROFILE

At the production end, the value chain begins with a highly seasonal, labor-intensive collection process undertaken largely by women and children over a three-to-four-week flowering window in March–April, with flowers requiring prompt gathering after falling at dawn to preserve quality. This primary collection of flowers, fruits, and seeds supports Adivasi livelihoods, especially during the agricultural lean season, though most of the produce is sold locally at low prices or consumed domestically.¹⁸

The mahua germplasm varies considerably in flower weight, juice content, total sugar, and antioxidant activity, with FRAP values ranging between 9.25 and 44.48 mg AEAC/g across accessions, pointing to substantial untapped potential for varietal selection and standardization.¹⁷ Jain also notes that no systematic classification of mahua varieties by sugar content, size, or region yet exists.¹⁰

The NIFTEM PMFME handbook corroborates this nutritional variability, reporting that fresh flowers contain 73.6–79.8 percent moisture, 47–54 g/100g total sugars, 6–6.4 percent protein, and appreciable calcium, phosphorus, and vitamin C. It also documents an extensive range of traditional ethnomedicinal uses, from galactagogue and antidiarrheal applications to treatments for bronchitis, skin disease, and headache, alongside laboratory-confirmed anti-inflammatory, antihyperglycemic, antibacterial, and anticancer activities of seed and flower extracts.¹⁶

Dubey et al. similarly affirm, through a review of the plant's botanical and pharmacological literature, that *Madhuca longifolia* contains a wide range of phytochemical constituents underpinning these applications, reinforcing calls for further conventional and pharmacological research.⁴

CURRENT VALUE CHAIN AND KEY CHALLENGES

Collection

Mahua is a summer produce from the hot and arid regions of central India. It grows within or on the peripheries of forests and is not an agricultural produce in any part of the country. As a result, collection is one of the toughest issues. The trees are spread over large swathes of land, and, for centuries, tribes have let the flower fall on the ground before picking it up by hand.

There are multiple issues here, especially for food-grade mahua and modern conservation practices.

First, to make picking easier, locals set the forest floor on fire before harvest season, leading to uncontrolled forest fires.

Second, once the flower falls on the ground, it is contaminated by animals such as sloth bears, porcupines, cattle, and elephants, as well as through insect infestation. It is then no longer food grade.

Third, the flowers are laden with sugary juice, and they split open after falling, leading to loss of volume.

Fourth, because of heat and exhaustion, many collectors suffer from back pain, dehydration, and swelling of the arms. Though rare, there have been instances of death from heatstroke too.

Fifth, school absenteeism during mahua season is another regular occurrence, as entire families often shift into the forests for a large part of the day.

In addition to logistical challenges, there are centuries-old customs and beliefs associated with the tree and the produce. Many tribes believe the flower is meant to fall on the ground.

In multiple states and via different delivery modes, nets are now being provided to collectors to make the process more efficient. In Jharkhand, the startup Wild Harvest is working with the government organization SIDHKOFED (Sidho-Kanho Agriculture and Forest Produce State Co-operative Federation Limited) and has covered around 70 trees with nets. Netting is in progress in multiple states currently.

Netting is a labor-intensive process due to the number and spread of the trees across the forest. Also, in some places, the ground can be uneven and rocky, which makes digging pegs difficult. The scale remains very small.

Even in regions where nets are provided for collection, there is deep distrust among the collectors about the intent, ownership, and efficacy of such interventions.

Processing

Drying is the most significant processing happening currently, both in terms of process and value addition. Mahua is considered a precious resource and protected fiercely. Therefore, drying is done by each household separately near their house.

Traditionally, mahua is dried on the ground or on plastic sheets, leading again to unsanitary exposure and fears of contamination. In some places, poultry and cattle have been observed walking over drying mahua. Rains are common during mahua season, and repeated exposure to moisture leads to darkened color of the dried flowers and fungal attacks, which fetches a lower price and results in non-food-grade mahua.

Ideally, dried mahua should have moisture content at 10–12 percent. This fetches the highest price and can be stored for up to 2–3 years. However, if it goes up to 20 percent, shelf life is reduced to three months.

The most impactful intervention, so far, has been the machan. The same porous plastic nets that are used for collection are tied to poles to form an elevated platform on which drying is done. Mahua flowers are high in moisture, and this method helps in better drying. Also, when it rains, the water flows right through, so there is no darkening due to moisture accumulation. In clear weather, machan drying achieves a 10–12 percent moisture level in 3–4 days.

Solar dryers have been utilized in some instances but, due to extremely high moisture and sugar content, an efficient and scalable model is yet to be perfected.

Key Constraints

Downstream, the CGIAR value-chain mapping of Mandla district in Madhya Pradesh identifies dehydration and storage as the chain's most binding constraints: fresh flowers must be sun-dried within days to prevent fermentation, yet inconsistent drying practices, contamination, and a lack of affordable cold storage force primary collectors into a resale-dependent market structure in which traders rather than the predominantly Adivasi collectors capture the bulk of value addition.¹⁸

This finding closely echoes Jain's account of dehydration as the “biggest challenge” in scaling food-grade mahua production, given the flower's rapid moisture reabsorption in the 30–40°C ambient temperatures prevailing during the harvest window.¹⁰

More broadly, processing that converts raw flowers, fruits, and seeds into oil, fermented beverages, and food products is constrained across the chain due to the lack of post-harvest infrastructure. There is minimal local capacity for de-shelling, drying, or storing seeds, and the absence of organized market structures makes prices highly volatile.⁷

NIFTEM places this processing bottleneck within a broader post-harvest deficit, noting that the absence of scientific investigation and modern post-harvest technology leads to mahua flowers remaining largely confined to open-yard sun drying and unorganized marketing. Roughly 75 percent of farmers sell at the farm gate to village merchants or pre-harvest contractors who control transport and price information. Regardless of product quality, this disadvantage puts collectors on a structural backfoot.¹⁶

The handbook further outlines the regulatory architecture mahua processors must navigate to formalize this trade, including mandatory FSSAI registration/licensing, adherence to HACCP-based food-safety documentation, and packaging considerations required to extend shelf life and access organized retail and export markets.¹⁶

Marketability

One of the biggest roadblocks in the marketability of mahua is knowledge. Most urban consumers have never heard of it. Those who have still carry the colonial stigma of its association with liquor and its being seen as food of the poor. This affects more than just acceptability among urban consumers.

Many Adivasi communities have stopped integrating mahua into their diets. Traditional knowledge is not being transferred to the youth. The new generation does not see an attractive market value for mahua. Due to disinterest and migration, there might soon be a labor shortage to collect mahua flowers.

There are several promising startups now in this segment, but it is still early days for product development to find scalable market-product fits.

VALUE ADDITION, MARKET DEMAND, AND ECONOMIC OUTCOMES

Beyond raw collection, sources converge on a nascent but constrained diversification into food-grade products such as laddus, syrup, flour, candy, squash, RTS beverages, jam, jelly, achar (pickle), energy bars, cookies, and even mahua wine and vermouth as the principal lever for improving farmgate returns. Efforts such as TRIFED’s “heritage liquor” branding and Van Dhan Vikas Kendra training also seek to destigmatize mahua’s association with country liquor and reposition it as a nutraceutical “superfood” comparable to turmeric.^{10, 16, 18}

Where such value addition has been formalized, the economics appear favorable. Amrita, Joshi, Pathak, and Gauraha document a women-led Self-Help Group-based mahua processing enterprise in Chhattisgarh’s Durg forest circle that generated total revenue of INR 17.06 lakh against production costs of INR 10.82 lakh, yielding a net profit of INR 6.23 lakh and an overall benefit-cost ratio of 1.5:1 across seven products: laddu, cookies, jam, achar, energy bar, RTS beverage, and squash. Cookies recorded the highest benefit-cost ratio (2.2:1), while energy bars yielded the highest absolute profit (INR 2.31 lakh).¹

At the consumption end, the same study finds that products with strong cultural and taste familiarity, such as laddu and cookies, enjoy the highest consumer demand, while novel or beverage-format products such as squash and RTS drinks face weaker uptake, largely due to lingering consumer association between mahua and alcohol.¹

This consumer-perception barrier is corroborated independently by Jain’s account in The Asia Foundation webinar, where it is noted that mahua’s destigmatization as a food item, rather than purely a liquor base, remains an active, unresolved challenge among both urban and rural consumers.¹⁰

GOVERNANCE, INSTITUTIONAL SUPPORT, AND BARRIERS

All sources converge on a common set of structural barriers limiting the chain’s full development:



Government and institutional interventions, including Van Dhan Vikas Kendras, state-run marketing facilities in Gujarat and Madhya Pradesh, and calls for stronger market linkages, fair pricing mechanisms, and awareness and training programs, are repeatedly identified as necessary levers to move the chain from subsistence-level collection toward a more remunerative, sustainably managed enterprise.^{7,1}

Collectively, these sources suggest that realizing mahua's economic potential, estimated at over one million tonnes harvested annually nationwide, will require coordinated investment in varietal research, dehydration technology, food-safety regulation, formal packaging and processing infrastructure, and market aggregation, building on the species' demonstrated historical resilience as a famine and livelihood resource for India's Adivasi communities.^{5, 16, 17, 18}

EMERGING MODELS

JHARKHAND

The Jharkhand government has set up a state-level cooperative, SIDHKOFED, that has conducted a pilot with a mahua startup, Wild Harvest India, in Giridih district to operationalize a food-grade mahua value chain anchored in institutional procurement, quality assurance, and direct market linkage.

Intervention

Nets for ease of collection, funded by SIDHKOFED and distributed by Wild Harvest.

Cooperative procurement.

Direct payment to collectors.

Quality-assured procurement systems.

Innovation

Quality assurance aligned with food-grade requirements.

Traceability in procurement.

Last-mile aggregation through cooperatives and community institutions.

- Integration of indigenous knowledge practices with formal market standards.

Impact

Price realization gains of approximately 55 percent–130 percent for primary gatherers over prevailing market rates.

Time-bound payment systems, with proceeds transferred within 48 hours of lifting directly into collectors' bank accounts.

The pilot saved 4,000 work hours and averted forest fires in over five acres of land.

During the 2026 season, Wild Harvest worked across nine districts in Jharkhand with more than 250 households and almost 2,000 mahua trees.

The initiative saved 21,000 work hours for partner communities and averted forest fires in 27 acres of forests.

Some partner households saw their incomes double.

This is a deep value-chain-based partnership that has also created a replicable procurement framework for forest produce.

ODISHA

In January 2026, the National Institute of Technology (NIT) Rourkela signed a Memorandum of Agreement (MoA) with the Odisha Rural Development & Marketing Society (ORMAS) to establish a mahua processing plant in Kuarmunda, Sundargarh.

The initiative, Liquor to Lifestyle, is aimed at value-chain development and rural enterprise promotion. The project will enhance processing efficiency, product diversification, and market preparedness of mahua.

Intervention

Establishment of a mahua processing plant.

Capacity building through demonstrations and hands-on training for producer groups and companies.

Support for branding, packaging, and market readiness of mahua-based products.

Innovation

NIT Rourkela will undertake process and plant design.

Development of Standard Operating Procedures (SOPs).

Quality-control guidance.

Food-safety compliance.

Technology upgrading suitable for community-based production units.

Development of improved technologies for value addition to mahua for non-liquor products.

Impact

ORMAS will function as the nodal agency for project coordination, including fund release, stakeholder engagement, training programs, and monitoring. The project seeks to enhance processing efficiency, product diversification, and market preparedness of mahua.

TELANGANA

The Telangana government has announced plans to launch a comprehensive mahua project with a budget allocation of INR 200 crore that will benefit 2.5 lakh Adivasi families.

Intervention

Processing units across collection regions.

Development of marketable products under Tribal Natural Food brands.

Combining the traditional knowledge of Adivasi women with modern technology.

Innovation

Plans to obtain a Geographical Indication (GI).

Establishment of quality and grading standards.

Proposed quality and grading standards for branded Telangana Ippa spirit.

Involvement of Integrated Tribal Development Agency (ITDA) Project Officers.

Impact

The project is expected to benefit 2.5 lakh Adivasi families and develop processing and value addition across collection regions.

CHHATTISGARH

The Forest Department collaborated with the FPO Jai Jungle to improve collection, primary processing, and the long-term conservation ecosystem around mahua.

In Jashpur district, Jai Jungle, in partnership with the district administration, has been central to building the basic ecosystem required for value addition and livelihood generation.

Intervention

Scientific collection practices.

Improved dehydration methods.

Community involvement through structures such as Van Dhan Vikas Kendras.

Common processing infrastructure.

Training for local women, SHGs, and producer groups.

Institutional linkages.

Innovation

Scientific collection training.

Basic hygiene and processing capacity building.

Development of common processing centers.

Connections with R&D institutions, technical experts, and market-facing opportunities.

Forest Department support for planting more mahua saplings in protected and suitable forest areas.

Impact

The initiative has enabled local women, SHGs, and producer groups to participate in food processing. It has contributed to local livelihood generation by creating processing-based employment, improving the value captured locally, and building a more organized ecosystem around heritage agriculture and forest-based foods.

RECOMMENDATIONS

Collection

- Invest in funds for nets for collection.
- Set up processing units closer to collection centers so that value addition can happen at community level and year-round employment is assured.

Standardisation

- Research to identify different varieties of mahua and their nutritional profiles.
- Develop food-safety standards for 'food-grade mahua'.

Market Connect

- Invest in cold-chain infrastructure to make freshly frozen flowers available for the HORECA sector.
- Develop a branding campaign for 'Indian wild-fruits' or forest produce of India as a separate category.
- Encourage APEDA showcases outside India to include Indian forest produce.

Ecosystem

- Create incubation support for forest-produce-based startups.
- Enable collaboration between mahua companies, agricultural universities, and food research institutes such as NIFTEM.

Regulation

- Distinguish between food-grade mahua and mahua for brewing.

GEOGRAPHICAL INDICATION (GI) STATUS OF MAHUA

Despite its deep cultural roots and the parallels frequently drawn with international origin-linked spirits such as Mexican tequila and Scotch whisky, mahua and its derived products —liquor, laddu, and achar — currently have no GI registration in India. This gap is confirmed by the Geographical Indications Registry maintained by the Office of the Controller General of Patents, Designs and Trade Marks (Intellectual Property India). It is particularly notable given that India has registered over 600 GI products overall and that its GI framework, established under the Geographical Indications of Goods (Registration and Protection) Act, 1999, has been in force since September 2003. Darjeeling tea was the first product registered under the framework in 2004–05.^{6, 9, 11}

This absence has been widely flagged in recent commentary as a missed opportunity. Pinaki Ghosh, IPR Chair at the West Bengal National University of Juridical Sciences, has argued that mahua's range of products possesses the kind of distinctive quality, historical reputation, and place-based cultural significance that GI registration is meant to protect, noting with irony that “even after two decades of having the first GI in India, we don’t have GI for mahua”. Commentators attribute this gap partly to colonial-era stigmatization of mahua liquor, which cast a lingering shadow over the plant’s broader culinary and cultural products and slowed efforts to seek formal recognition.³

Arguments for GI Recognition

1. Authenticity and anti-misappropriation

A GI tag would legally prevent unauthorized commercial use of the ‘mahua’ name by entities outside its traditional growing and producing regions, addressing concerns about cultural misappropriation, including by international manufacturers, given that mahua-based alcoholic beverages currently lack any IP protection.¹⁵

2. Economic benefit-sharing with tribal communities

Examples such as Bastar dokra from Chhattisgarh, buransh (rhododendron) squash from Uttarakhand, and Marthandam honey from Tamil Nadu show how GI tags can help local producers build market value and consumer trust. A GI tag for mahua could similarly help ensure that more of its value reaches the Adivasi and other forest-dependent communities and SHGs who collect and process the flowers, rather than the intermediary traders who often stand between producers and consumers.^{3, 6}

3. International branding and export potential

Desmond Nazareth, founder of the heritage spirits brand DesmondJi, which released the first officially bottled mahua liquor as an Indian Made Foreign Liquor product in 2018, has compared mahua’s potential trajectory to that of Goan feni, which has been GI-registered since 2009, and Mexican tequila, which secured

Denomination of Origin protection in the 1970s and has since become a globally recognized, premium-positioned spirit.^{3, 12}

4. State-level precedents already in motion

Madhya Pradesh officially recognized mahua as a “heritage liquor” in 2021 and subsequently launched a government-backed brand (Mond) in 2023, with production rights granted to SHGs in Dindori and Alirajpur districts. Similar grassroots branding, such as Mohulo, has emerged in Odisha.^{14, 18}

These state-level heritage designations are seen as preparatory groundwork that could feed into a future GI application.^{14, 18}

Challenges to GI Registration

Securing GI status for mahua presents challenges that are less pronounced for geographically concentrated products such as Darjeeling tea. Mahua trees and traditional processing practices are spread across a large and ecologically diverse region, covering Chhattisgarh, Jharkhand, Odisha, Madhya Pradesh, Maharashtra, and parts of Bihar, Uttar Pradesh, and South India. The mahua economy also involves many distinct tribes, including Gonds, Baigas, Santhals, Bhils, and Oraons. This diversity makes it difficult to define a single geographical boundary and establish common production standards that can meet the legal requirements for GI registration.^{3, 16}

Even where GI status exists for comparable Indian spirits such as Goan feni, international recognition remains weak, since the WTO’s TRIPS framework does not warrant automatic cross-border enforcement of GI rights, leaving GI-tagged Indian beverages exposed to competition from foreign labels in markets such as the European Union and the United States.²

Several sources suggest that a dedicated national or inter-state mahua association could help build the institutional foundation needed for a GI application. Such an association, perhaps modeled on initiatives like the Himalayan Nuts Association, could bring together producers and other stakeholders from across the mahua-growing regions. It could also help develop common quality standards, coordinate scientific research on mahua’s nutritional and medicinal properties, address the evidence gaps highlighted by NIFTEM, Dubey et al., and the webinar, and give geographically dispersed tribal producers a collective voice in the GI registration process.^{4, 10, 16}

Conclusion

As established through this chapter, mahua is not just a forest product; it is a source of food, income, culture, and ecological resilience. Yet its potential remains largely untapped, held back by weak value chains, limited research, and inadequate market recognition. A GI, backed by stronger producer institutions and clear quality standards, could help create greater value for the communities that have nurtured mahua for generations. The story of mahua could become a blueprint for unlocking the value of India’s many undervalued forest products.

The Mahua Paradox

Abundant — but undervalued

Widely available across India, yet largely an informal, low-value commodity.

Nutritious — but poorly understood

A traditional food and source of nourishment, yet little recognized as a food product among urban consumers.

Culturally significant — but stigmatized

Deeply embedded in Adivasi culture and knowledge, yet widely associated with liquor.

High potential — but low value capture

Can be developed into diverse products, but limited value addition leaves much of the value with intermediaries.

Resilient — but vulnerable

Well adapted to dry conditions, yet changing rainfall and flowering patterns create new risks.



KANDHAMAL TURMERIC: CONTEXT AND RATIONALE

Kandhamal turmeric is grown predominantly by a cluster of Adivasi farmers whose yields and production capacity are low. Despite rising demand and stronger brand positioning, cultivation practices on the ground have remained largely unchanged. Subsistence-level farming, limited modernization, and small-scale cultivation have ensured that Kandhamal turmeric is organic, but often not by choice.

Kandhamal turmeric received a Geographical Indication (GI) tag in 2019 and has been part of Odisha's promotional platforms — from showcases and state-owned retail outlets to festivals and marketing communications. It is visible and accessible, at least within Odisha. However, these efforts have done little to change the realities of cultivation and the value chain.

The product also has a distinctive story. The hills and forests where the turmeric grows, combined with Adivasi farmers who use age-old farming practices, could position Kandhamal as a niche, prized, and aspirational product. Yet low yields, limited value addition, and bulk trading have kept much of the crop at the lower end of the value chain.

The challenge for Kandhamal is therefore to protect its small-farm cultivation and natural farming characteristics while introducing modern technologies, increasing yields, creating differentiated markets, and ensuring greater value reaches farmers.

COLLECTION, VARIETAL DIVERSITY, AND NUTRITIONAL PROFILE

At the production end, around 40,000 Adivasi households are involved in growing Kandhamal turmeric over roughly 13,000 acres, producing around 24,000 metric tonnes annually. The yield of GI-tagged Kandhamal turmeric has traditionally been low compared with other turmeric-growing regions such as Erode in Tamil Nadu.

The high investment and low yield have pushed farmers towards newer varieties such as CIM-Pitambar. The government has also introduced other crops with higher ROI in the district, ranging from corn to lemongrass and mentha. Illegal cannabis cultivation has further worsened the situation.

Kandhamal turmeric has a 10-month harvest cycle and cultivation is labor-intensive. Exporters prefer crops with a shorter duration. Some farmers in the district have therefore moved to high-yield varieties such as CIM-Pitambar. However, there are no studies on the viability and ROI of moving to such varieties.

Intercropping and the introduction of new crops into traditional turmeric-growing areas can result in pesticide residue, potentially affecting the organic status of the produce.

Kandhamal's strongest differentiator may lie in its composition. While other Indian turmeric varieties have oleoresin levels of up to nine percent, Kandhamal turmeric usually ranges between 12 percent and 15 percent, with 5.3 percent volatile oil. The combination of curcumin and oleoresin makes it relevant to medicinal, cosmetic, and culinary industries. Yet turmeric continues to be primarily associated with curcumin, leaving the potential of Kandhamal's high oil content underutilized.

CURRENT VALUE CHAIN AND KEY CHALLENGES

Cultivation

In Kandhamal, yield, area under cultivation, and total production are under pressure. The high investment and low yield of traditional Kandhamal turmeric have encouraged farmers to shift to newer varieties and alternative crops.

Farmers in Daringibadi and Hathimunda who grew turmeric with higher curcumin content have shifted to growing corn due to the lack of quality-based remuneration. In a short span of time, corn has seen greater technology adoption, with some farmers procuring machinery from other states. A study also found financial weakness, poor economic conditions, and high charges by commission agents to be major constraints faced by farmers.

The challenge is therefore not simply to increase cultivation but to make Kandhamal turmeric financially attractive enough for farmers to continue growing it.

Processing, Storage, and Infrastructure Constraints

Processing is one of the weakest links in Kandhamal's value chain. KASAM, the largest farmers' cooperative, is the only organization with significant processing capacity in the district, and even that is limited to making turmeric powder. There are no central processing units, either public or private. For most growers, boiling and rolling remain the only forms of processing, which are done at the farm level.

This is also where much of the value is lost. Raw turmeric has an estimated margin of just one percent, basic processing can take it to four percent, while oil extraction can raise it to 50 percent. Yet most Kandhamal turmeric continues to leave the district in bulk after only basic processing. There is currently just one oil extraction unit in Paralakhemundi. This means that a potentially high-value part of the crop is processed outside the district.

The immediate requirement is therefore not just more processing infrastructure, but the right infrastructure. A study is needed to assess the processing requirements, potential utilization, and market linkages for processed products. At the farm and trader level, boiling and rolling are two areas where even relatively basic interventions could improve quality, efficiency, and value realization.

Marketability

Despite Odisha government efforts to promote Kandhamal turmeric through the B2C segment, most of the crop continues to be traded in bulk. Its primary market is Erode, where it is mixed with local turmeric that has greater market share and brand recognition, despite having much lower essential-oil and oleoresin content.

Outside festivals and government outlets, the average consumer in Odisha has limited access to Kandhamal turmeric, while consumers outside the state have little to no access to it. Unlike Lakadong, which has a thriving startup ecosystem, more consistent branding, and wider consumer awareness, most retail consumers in India are yet to demand Kandhamal turmeric by name.

This creates a classic cause-and-effect conundrum. Brands using Kandhamal turmeric for their powders do not see value in claiming it to be Kandhamal turmeric. At the same time, consumers cannot develop demand for a product whose identity is rarely visible.

Even startups are mostly seen at exhibitions. A few have ventured into products such as soaps, but overall reach and visibility remain low.

Interestingly, while the domestic market remains tepid, global demand for Kandhamal is picking up. KASAM exported 300 MT to the European Union (EU) in 2025 and projects around 500 MT in 2026. The United States is another favorable market, and West Asia is also emerging as one.

However, the export market is sensitive to price, with most settling for the minimum price range. Long-term demand needs to be created and sustained by positioning it as a GI-tagged superior turmeric that cannot be compared to generic turmeric.

Value Addition, Market Demand, and Economic Outcomes

The most significant opportunity for Kandhamal turmeric lies in moving beyond bulk trade and basic processing towards differentiated value addition.

Raw turmeric has an estimated margin of one percent, basic processing has four percent, while oil extraction can take it up to 50 percent. Value addition close to production centers could therefore raise margins and generate employment, given Kandhamal's migration issue.

The high oil content provides a differentiated market proposition. Turmeric has come to be known primarily for curcumin, but Kandhamal's higher oleoresin and volatile-oil content makes it potentially relevant to pharmaceutical and cosmetic industries. There is merit in positioning Kandhamal turmeric beyond curcumin.

The export market provides an early indication of this potential. KASAM exported 300 MT to the EU in 2025, with exports projected to touch 500 MT in 2026. West Asia is also emerging as a key market. However, limited availability and volumes do not work for many exporters, while price sensitivity limits value realization.

The high oil content of Kandhamal turmeric therefore needs to be promoted and marketed to relevant pharmaceutical and cosmetic industries rather than allowing the bulk of the turmeric to be bought by traders for mixing with turmeric from Erode.

There is also an opportunity to develop a startup ecosystem. In the case of Lakadong, startups have helped in branding and premiumization. A thriving startup ecosystem can do the same for Kandhamal turmeric. Compared to Self-Help Groups or Farmer Producer Organizations, startups have a bigger risk appetite and can implement branding and storytelling better.

Governance, Institutional Support, and Barriers

First, the GI certification has not benefitted all growers and traders equally. The certification is held by KASAM and is readily available to its 61 societies and 12,000 farmers. Other farmers and traders can also apply for usage rights directly through the GI registrant, but many are unaware of this process.

Second, there is limited innovation in product development, positioning, and storytelling. The government and cooperatives currently dominate both the B2B and B2C sectors. The lack of startups limits niche branding and agility in marketing.

There has been no investment in tools, training, or capacity building by organizations or brands that procure from Kandhamal. Their relationship is with traders and limited to purchasing.

In January 2025, the Government of India established the National Turmeric Board at Nizamabad. The Board is working for the welfare of turmeric farmers spread across 20 states and has representatives from the top turmeric-growing states of Maharashtra, Meghalaya, and Telangana.

The Board recommends setting up a group to understand the needs of the pharmaceutical industry and provide market intelligence. Discussions are being held with the Ministry of AYUSH, but additional insights will be helpful in creating turmeric cluster-market fit.

The Board also recommends a study on the impact of GI tagging on farmer incomes. Consequently, there should be training on the process and benefits of GI, seed conservation, and the process to avail benefits and promotions.

EMERGING MODELS

National Turmeric Board

The Board, working for the welfare of turmeric farmers spread across 20 states, has representatives from the top turmeric-growing states of Maharashtra, Meghalaya, and Telangana.

Intervention

National-level institutional support for turmeric farmers.

Representation of major turmeric-growing states.

Market intelligence and sectoral linkages.

Engagement with the pharmaceutical sector and discussions with the Ministry of AYUSH.

Study on the impact of GI tagging on farmer incomes.

Innovation

Understanding the needs of specific end-use sectors.

Providing market intelligence.

Mapping turmeric varieties and their usability across different sectors.

Building stronger links between production clusters and specialized markets.

Impact

The National Turmeric Board provides an institutional platform for Kandhamal to connect with wider turmeric markets and sectoral knowledge. Its work on market intelligence and pharmaceutical-sector requirements could help identify specialized applications for Kandhamal's high oleoresin and volatile-oil content.

Public–Private Partnerships

There has been no investment in tools, training, or capacity building by organizations or brands that procure from Kandhamal. Their relationship is with traders and limited to purchasing.

There is therefore a need for stronger public–private partnerships involving farmer organizations, brands, startups, research institutions, and government agencies. Such partnerships could support farmer-level technology adoption, processing, traceability, product development, and market creation.

POLICY RECOMMENDATIONS

Collection

- Due to lack of quality-based remuneration, farmers in Daringibadi and Hathimunda who grew turmeric with higher curcumin content have shifted to growing corn. In a short span of time, corn has seen higher technology adoption, with some progressive farmers procuring machinery from other states.
- Set up a central mandi or collection center.
- Study the viability and ROI of modern varieties such as CIM-Pitambar before large-scale adoption.

Processing

- While the lack of processing facilities is apparent, a study needs to be conducted to assess the kind of processing required, extent of utilization, and market linkages for processed products.
- There is a need for process-level value addition at the farmer or trader level. For example, boiling and rolling are two areas that need immediate intervention.
- Build oil-extraction capacity within Kandhamal district to retain value at source.

Market Connect

- Bulk B2B trade is the mainstay of Kandhamal turmeric. It makes the product invisible as most brands and traders never sell it forward as Kandhamal turmeric. B2C brand creation needs to be promoted for better brand visibility and value realization.
- Exports to the EU are growing after their test in 2016. From 300 MT in 2025 to projected 500 MT in 2026, there is promise, but availability and limited volumes do not work for many exporters. Currently, visibility of traders is more prominent, and even premium consumers do not have access to farmers. There is a need for stricter quality testing and value-chain segregation for exports.
- Currently, there is only one oil extraction unit in Paralakhemundi. Capacity needs to be built within Kandhamal district to retain the value at source.
- The bulk of the turmeric is bought by traders for mixing with turmeric from Erode, thus losing its identity. High oil content of Kandhamal turmeric needs to be promoted and marketed to relevant pharmaceutical and cosmetic industries.
- Long-term demand needs to be created and sustained by positioning it as a GI-tagged superior turmeric that cannot be compared to generic turmeric.

Ecosystem

- There is a need to map India's turmeric varieties and their usability in different sectors so that best price realization can be achieved.
- The National Turmeric Board recommends setting up a group to understand the needs of the pharmaceutical industry and provide market intelligence. Discussions are being held with the Ministry of AYUSH, but additional sectoral insights will be helpful in creating turmeric cluster-market fit.
- Incubation for Kandhamal turmeric-based startups. There is an urgent need for innovation in product development, positioning, and storytelling.
- The challenge is to protect small-farm cultivation, introduce modern technologies, and increase yield while maintaining the organic nature of the turmeric.

- There has been no investment in tools, training, or capacity building by organizations or brands that procure from Kandhamal. Their relationship is with traders and limited to purchasing.

Regulation

- Strengthen awareness of the GI certification process among farmers and traders outside the KASAM network.
- Enable farmers and traders to understand and access GI usage rights.
- Strengthen quality testing and traceability for GI-tagged Kandhamal turmeric.

GI STATUS OF KANDHAMAL TURMERIC

Kandhamal turmeric received a GI tag in 2019. The GI provides an important foundation for differentiating the product from generic turmeric, but certification is yet to translate into equivalent benefits for all growers and traders. The central challenge is not the absence of geographical recognition but the limited use of that recognition across the value chain.



Conclusion

Kandhamal turmeric has the foundations of a high-value cluster: a GI tag, distinctive agro-ecological conditions, high oleoresin and volatile-oil content, a strong Adivasi farming story, and growing export demand. Yet these advantages have not translated into higher returns for farmers.

Kandhamal remains largely a sourcing center rather than a developed turmeric ecosystem. Low yields, limited processing, bulk trading, and mixing with turmeric from other regions continue to limit value realization.

Climate change is adding to these pressures, with erratic rainfall, thinning forest cover, landslides, and warmer winters threatening the conditions that support Kandhamal turmeric.

Realizing its potential will require better cultivation practices, quality-based remuneration, local processing and oil extraction, traceability, GI awareness, stronger branding, and links with pharmaceutical and cosmetic markets.

Kandhamal Turmeric Value Chain: At a Glance

Cultivation: Small Adivasi farmers grow turmeric across roughly 13,000 acres.

Key challenges: Low yields, high costs, labor intensity, and farmers shifting to other crops



Collection: Turmeric is collected and moved through farmers, cooperatives, and traders.

Key challenges: Limited quality-based remuneration, fragmented production, and the lack of a central collection system



Processing: Boiling and rolling are largely done by growers; KASAM has limited powder-making capacity.

Key challenges: Limited processing infrastructure and limited local oil extraction



Aggregation & trade: Much of the crop is traded in bulk, with Erode as the primary market.

Key challenges: Mixing with other turmeric and loss of Kandhamal identity



Market

Kandhamal turmeric reaches domestic and export markets, including the EU and the USA, and emerging markets in West Asia.

Key challenges: Limited B2C demand, price sensitivity, and low visibility

The Kandhamal Paradox

GI-tagged — but largely anonymous

Recognized geographically, yet much of the turmeric is traded in bulk and loses its identity downstream.

High oil content — but curcumin-led

Distinctive oleoresin and volatile-oil content shows potential in specialized markets, yet turmeric is primarily marketed around curcumin.

Organic by default — but under pressure

Traditional cultivation has preserved its natural farming characteristics, while intercropping and new crops can introduce pesticide residue.

High potential — but low value capture

Oil extraction and other value-added products can generate higher margins, yet most turmeric leaves the district after basic processing.

Growing exports — but limited premium

Demand from the EU and other international markets is growing, but price sensitivity and limited volumes

Building a New Future for Kandhamal Turmeric

Protect

Preserve small-farm cultivation and the natural farming characteristics of Kandhamal turmeric.

Improve

Invest in better cultivation practices, quality-based remuneration, collection, processing, and traceability.

Add value

Build local processing and oil-extraction capacity to retain more value within Kandhamal.

Build markets

Position Kandhamal as a specialized GI turmeric, with stronger B2C branding and links to pharmaceutical and cosmetic markets.

Value the local

Ensure that higher value reaches the Adivasi farmers who grow the turmeric.



GALGAL: CONTEXT AND RATIONALE

India is home to a diverse range of citrus varieties. As per the National Horticulture Board, the major varieties are Rangpur lime, kagzi lime, lemons, and sweet lime. Mandarin varieties include Khasi orange, Coorg orange, kinnow orange, and Darjeeling orange. Among the sweet orange varieties, mosambi, malta, and Sathgudi are prominent. India is the world's third-largest citrus producer and contributes approximately nine percent of global citrus production.

In the lower Himalayan hills, galgal is part of the everyday landscape. It grows around homes and across the hills, often without being cultivated as a cash crop. During the harvest season, from October to January, the fruit appears in abundance and is sold by the roadside. For local communities, it is a familiar ingredient, used in pickles, chutneys, as a souring agent, and as vinegar. Yet beyond the regions where it grows, galgal remains largely unknown, with little organized infrastructure to pick, process, or preserve it. There is currently no supply chain that makes galgal available in other parts of the country or the world, nor a value chain that extends its shelf life or ensures year-round availability.

Galgal is a key variety found in Uttarakhand, Himachal Pradesh, and Jammu & Kashmir. It is a semi-wild, hardy plant that can be farmed and grown on barren land. Selected strains of galgal can survive without irrigation, and its plants can tolerate temperatures above 40°C during summer and as low as 4°C during winter without frost injury, according to data from a report.

There is an implicit perception in the agricultural and policy ecosystem that Indian citrus varieties are inferior to imported ones. This perception has contributed to the import of both citrus fruits, such as Valencia and tangerines, and planting material.

“The ICAR-CCRI, Nagpur, has introduced 16 elite exotic citrus varieties from the USDA's National Clonal Germplasm Repository for Citrus and Dates, Riverside, California... Known for superior yield, premium quality, and extended harvesting windows, these varieties address challenges in India's citrus industry such as low productivity, limited varietal diversity, and subpar fruit quality.”

The study of galgal, in this context, provides a framework for understanding not just galgal but other Indian citrus varieties as well. It highlights the need to identify the unique characteristics of Indian citrus varieties, develop a product-market fit around those characteristics, and make targeted interventions to protect and promote varieties that are distinctive to India.

CURRENT VALUE CHAIN AND KEY CHALLENGES

Collection

Galgal grows in the hills and backyards but is rarely cultivated as a cash crop. Collection is therefore done by hand and at a small scale. Aggregation from small producers is done at the local market level. There is no production data from any of the states where it grows, and the value chain remains rudimentary.

Processing

Most galgal is consumed at home as pickle, chutney, a souring agent, and vinegar. The fruit is bitter, has thick skin, and low total soluble solids, reducing its appeal for the juice industry. Self-Help Groups and small companies currently process it at some scale, but the products are still mostly pickles. This limits the range of applications currently available for the fruit and constrains opportunities to create greater value beyond its traditional uses.

Marketability

There is an implicit bias in the policy and market ecosystems that hampers the marketability of citrus varieties such as galgal. Its drawbacks are particularly pronounced when compared with imported varieties. However, few studies have been conducted to identify the unique characteristics of galgal and the markets in which those characteristics could be relevant. This creates a gap between the characteristics of the fruit and a clear understanding of where they could translate into market opportunities.

OPPORTUNITIES AND EMERGING MODELS

Potential of galgal peel

Research shows that galgal peel, which constitutes 25–35% of the fruit by weight, has antioxidant, antimicrobial and anti-inflammatory properties, with potential applications in the therapeutic industry, waste management, water purification and biodegradable materials.⁴

The essential oil of galgal peel contains volatile compounds such as limonene, which have uses in the pharmaceutical industry, food preservation, and aromatherapy. The peel is also high in pectin, which has applications in the food-processing industry. Its antimicrobial properties give it potential as a natural preservative, while its high concentration of cellulose fiber could have uses for biodegradable packaging. Together, these characteristics point to opportunities to use parts of the fruit that are currently underutilized and to explore applications beyond galgal's traditional food uses.

Research and development

Many heritage Indian ingredients are dismissed as having limited inherent value. Better marketing and storytelling can make them more aspirational, but scientific research is crucial to evidence-based positioning.

In the case of galgal, a few studies already point to possibilities beyond its traditional uses. These findings provide an initial evidence base for further research into how galgal's characteristics could translate into viable applications.

A study by the Institute of Pharmaceutical Sciences, Kurukshetra University, Haryana, found that alcoholic extracts of galgal leaves have antioxidant and antidiabetic properties.

Another study examined galgal peel waste by extracting and microencapsulating its essential oil (EO) for potential food applications. The study found that microencapsulated galgal EO has antioxidant and antimicrobial properties for food preservation.

Further research explored the use of microencapsulated galgal essential oil as a natural preservative for ghee. The study found that galgal EO powders extended the oxidative stability of ghee beyond 180 days, indicating potential as a clean, chemical-free alternative to synthetic preservatives. Together, these studies suggest that galgal warrants further investigation as a source of ingredients and compounds with applications beyond its current uses.

Conclusion

Galgal illustrates the untapped potential of India's lesser-known indigenous crops. A hardy fruit with local uses, it has remained largely confined to the regions where it grows. The research available points to characteristics and applications that extend beyond these traditional uses, while also highlighting the need for further research and development. Exploring these opportunities could help build demand beyond traditional markets while creating greater value for the communities and regions that have sustained it.

Galgal At a Glance

Hardy

A semi-wild citrus that can grow on barren land and tolerate extreme temperatures.

Indigenous

A native of the lower Himalayan region, used locally in pickles, chutneys, vinegar and as a souring agent.

Underused

Despite its distinctive characteristics, galgal remains largely confined to the regions where it grows.

Potential

Its peel and essential oil show potential in food preservation, pharmaceuticals, aromatherapy, and biodegradable materials.



JAMUN: CONTEXT AND RATIONALE

Jamun (*Syzygium cumini*) is interlinked with Indian history to the extent that it is believed that the subcontinent is named after the fruit. It is found in almost all southern, eastern, and western states and even in the lower Himalayan region. In late summer and early monsoons, it is abundant and ubiquitous on Indian streets.

The jamun value chain is as complex as the subcontinent itself. Jamun belongs to the genus *Eugenia*, which comprises 1,000 species. There is the commonly found variety in North India called Ram Jamun. Other traditional and naturally occurring varieties are Kaatha, Badama, Jathi, and Ashada. Then there are the varieties developed by ICAR and agricultural universities. Some of the better-known varieties are Goma Priyanka, Arka Jamun JN-I/1, and Konkani.

Several farmers have also developed their own varieties of jamun. Bengaluru-based NC Patel has developed Patel Jumbo, Patel Samrudhi, and Patel Akal varieties. Some varieties, such as Jamun Nerantara, are found only on one tree and are protected by the Protection of Plant Varieties and Farmers' Rights Authority.

Jamun has remarkable diversity, alongside an equally interesting landscape of new research and innovation. Most consumers are not aware of the wide range of varieties found across India, shaped by soil, climate, and other environmental conditions. Moreover, jamun is a forest produce, a horticultural crop, and is also planted in urban areas as an avenue tree. In fact, it is the tree of choice in Lutyens Delhi.

Jamun is part of childhood memories for many Indians, but its place in Indian life goes well beyond nostalgia. It has a long cultural history, finds mention in ancient texts and Ayurvedic medicinal formulations, and continues to be consumed as food, used in beverages, and valued for its medicinal properties. India is the second-largest producer of jamun, contributing almost 15 percent of global production, while China accounts for more than 50 percent. However, it is difficult to establish accurate production data because much of the jamun collected in India comes from small-scale and unorganized sources.

Despite being deeply embedded in India's food and cultural landscape, jamun's value chain remains fragmented, short, and largely unevolved. The first-ever export consignment of jamun, of the Kundana variety from Karnataka, was sent to the United Kingdom (U.K.) only in June 2025. For a fruit so familiar to generations of Indians, this raises the question of why it took so long to reach international markets — and why there are still so few value-added products.

CURRENT VALUE CHAIN AND KEY CHALLENGES

Collection

There are few plantations or orchards of jamun. The diversity of settings in which the tree is found complicates collection. Traditionally, just like mahua, jamun fell on the ground and was then picked up. The fruit is soft and pulpy, and is easily damaged when it falls. There is also a risk of contamination.

Just like mahua again, the key intervention in collection is netting. While in mahua, 'food grade' has now become a commonly used term, it is yet to be applied in the context of jamun. While the netting method is used when the fruit is allowed to fall naturally, there have been a few small-scale innovations in jamun harvesters. These are mechanical tree shakers that are designed for harvesting small fruits such as jamun, walnut, and tamarind. It is too early to assess both efficacy and adoption as there are no large-scale commercial farms of jamun.

The fragmented nature of collection is further shaped by the fact that much of the fruit is sourced from wild and semi-wild trees across Adivasi belts, particularly in Rajasthan, Chhattisgarh, Madhya Pradesh, Jharkhand, and Odisha. Seasonal availability rarely exceeds 20 to 25 days per year, while the fruit's shelf life at ambient temperature can be as short as 24 hours. This acute perishability creates a significant post-harvest challenge: in the absence of a cold chain, losses during harvest and the immediate post-harvest phase alone are estimated at 20–30 percent, while most produce reaches local markets through ad hoc roadside sales or informal trading networks.

Processing

Jamun has a relatively short harvesting window and is highly perishable. Pulping seems to be the most widely used processing method as of now. Recently, a few startups have begun experimenting with new-age consumer products, such as jamun strips, chips, cubes, and shots.

For many retail and commercial users, jamun value-added products are still a niche and emerging segment. There is a need for research on new product development and consumer acceptance.

The range of potential value-added products is wider and includes squash, jam, jelly, vinegar, wine, chips, seed powder, and candy. However, the segment remains poorly institutionalized. High processing costs are the foremost constraint faced by processors (73 percent), while export tariff barriers (75 percent) and high international freight charges (60 percent) constrain exporters.

The 'NIFTEM Detailed Project Report' for a jamun candy processing unit under the PM Formalisation of Micro Food Processing Enterprises (PMFME) scheme illustrates the potential for a small-scale processing enterprise to be financially viable. A 150 MT-per-annum unit, with a total project cost of INR 38.62 lakh and a selling price of INR 240/kg, has a benefit-cost ratio of 1.57, a payback period of approximately 2.5 years at full capacity, and an average DSCR of 2.16.

The emerging innovation landscape also points to the potential of using parts of the fruit that have traditionally been treated as waste. Tribal Veda, for instance, started selling jamun seeds at INR 10 per kg in local markets, which did not cover transportation costs. The enterprise subsequently began drying the seeds, turning them into powder, and selling the product under its own brand. The powder now sells at INR 275 for a 250-gram packet. It has also developed jamun tea and vinegar. These products have emerged from the reuse of waste and have become revenue-generating product lines.

Marketability

Jamun is an age-old commodity whose potential is locked in consumption silos. Though there is no data breakdown of the consumption patterns, a large share of the produce is consumed raw as whole fruit. Other food uses include jam, juice, and frozen pulp, which have a predominantly B2B demand.

Jamun is a key ingredient in numerous nutraceutical products — seed powder and formulations including jamun juice as a treatment for diabetes are a few examples. The key shift is to encourage consumption that goes beyond seasonal and medicinal uses.

Evidence from more organized production systems also illustrates the challenges around value capture. In Tamil Nadu's Theni district, where jamun has been cultivated more systematically, a value chain study identified five operational marketing channels. Direct farm-to-consumer sale recorded the highest marketing efficiency score (7.67) and the highest producer share in the consumer rupee (88.46 percent). In contrast, the export-oriented seed powder channel returned only 39.13 percent of the consumer rupee to producers even as the final consumer price reached INR 345/kg, reflecting significant value capture by intermediaries.

The B2B market faces a related constraint. Rajesh Oza of Tribal Veda's account in this project's webinar highlights the lack of a reliable, year-round cold chain and organized distribution network, which makes it difficult for hotels and restaurants to source frozen whole or pulped jamun. This limits the ability of HORECA businesses to incorporate jamun into their offerings.

At the same time, the first-ever export consignment of jamun, of the Kundana variety from Karnataka, was sent to the U.K. only in June 2025. This suggests that while international demand is emerging, the broader market remains at an early stage of development.

Gender and livelihoods

Labor and gender are central to the jamun value chain but have remained largely invisible in mainstream economic accounting. Across India's forest-fringe communities, women account for over 70 percent of Non-Timber Forest Products (NTFP) collectors in the Central Highlands, undertaking much of the physical labor of collection, sorting, and primary processing. Yet despite this dominance in the labor force, women often have limited control over the income generated from these activities. Men typically manage transportation, market negotiations, and formal trade networks, leaving the most labor-intensive but least remunerative stages of the chain to women.

Across the NTFP sector, women's earnings from collection are often lower than daily wage labor, while social norms can restrict their access to distant and formal markets. Tribal Veda offers a different model: its two processing units employ around 70 women each in processing and engage another 150 each in collection, directly involving more than 1,000 women across its operations. Approximately 60 percent of profits are directed back to them.

This model illustrates how value addition can potentially create greater livelihood opportunities within the communities that collect and process forest produce. However, such models remain exceptions rather than the norm.

Emerging models

Punjab becomes a jamun hub

A cluster of five villages from Fazilka and Muktsar districts have emerged as a new hub of jamun in Punjab. Between 2022 and 2024, jamun sold at the local Muktsar district mandi grew from 776 quintal to 2,400 quintal. The jamun is of superior quality and has found buyers in Delhi and Uttar Pradesh. In areas where groundwater has risen, farmers have replaced their kinnow crop with jamun.

In Jalalabad, the Government of Punjab has laid the foundation for the first dedicated jamun mandi of Punjab. A sum of INR 11 crore has been allocated for the mandi, which will be built over 12 acres. It will have 90 shops, rest areas, and banks. Work is expected to be completed in 2026.

PUBLIC-PRIVATE PARTNERSHIPS

Tribal Veda developed a sugar-free jamun strip with food scientists from the food technology division of Bhabha Atomic Research Centre. This also extends the shelf life of the product.

The enterprise's broader model also demonstrates how processing, product development, women's livelihoods, and market access can be brought together. Rajesh Oja's enterprise, Tribal Veda (Jovaki Agro Foods India Pvt. Ltd.), began in 2017 in Udaipur, Rajasthan, where indigenous families sold jamun from baskets by the roadside for whatever price the fruit could fetch that day. Since then, it has built a direct-to-consumer (D2C) portfolio of more than 10 products, including seed powder, fruit strips, tea, vinegar, and flakes. It has also expanded its operations to Chhattisgarh and Madhya Pradesh, and started selling on Amazon USA and through distributors in California.

The enterprise is anchored in a zero-waste philosophy: Seeds that were once sold in the mandi for INR 1/kg are now packaged as 250-gram packs of seed powder and sold for INR 75. Its two processing units employ around 70 women each in processing and engage another 150 each in collection, directly involving more than 1,000 women across its operations. Approximately 60 percent of profits are directed back to them.

Jovaki's ambition, backed by Rainmatter Foundation (Zerodha's climate initiative), is to scale this model from 5,000 to 1 lakh indigenous women, constituting what would be India's largest NTFP network centered on women's labor and enterprise.

At the national level, Oja and sector observers have also called for APEDA to create a dedicated wild fruit category for international promotion, giving India's forest produce a stronger identity in global markets.

POLICY RECOMMENDATIONS

1. Collection

Clusters with high-quality jamuns and potential for aggregation need to be identified. Targeted interventions, including netting and food-grade practices, then need to be made.

The quality of jamun differs from region to region, making cluster identification and quality characterization important for aggregation and market development.

2. Processing

- New product development must have the end user in mind. For example, Tribal Veda is developing a jamun sauce that can be readily used by the HORECA sector. It prioritizes ease of use.
- The experience of Tribal Veda also demonstrates the potential to turn by-products into revenue-generating product lines. They have developed a jamun tea and vinegar, too. All these products have come out of the reuse of waste and are now revenue-generating product lines.
- Research on new product development and consumer acceptance is needed to determine which value-added products can move beyond niche markets.

3. Market Connect

The key shift is to move jamun from a seasonal fruit to a product that can be consumed throughout the year.

- Workshops need to be conducted at culinary schools and with HORECA chefs on best use cases of jamun value-added products. Recipes with jamun products need to be developed, demonstrated, and popularized via social media.
- Commodities such as jamun and mahua will benefit from the creation of a category such as wild fruits of India or something similar to highlight Indian forest produce. When APEDA takes Indian companies to international events, featuring a category like this could spread awareness.
- A reliable distribution network is also needed to connect value-added jamun products with HORECA and other commercial users, particularly given the limited shelf life of the fresh fruit.

4. Ecosystem Building

- A robust distribution network needs to be built to serve the HORECA industry. Jamun value-added products need to be readily available through distributors and supplied on demand. This will make it easier for restaurants to adopt and use these products.
- Banks may not prefer startups working in forest areas as such businesses may not fall under their jurisdiction. This needs to be addressed.
- Subsidies and grants specifically targeted at startups working with forest produce and creating livelihoods for tribal women should be instituted.
- In established sectors such as ghee, D2C branding is easier for new startups because consumers already understand the value proposition. For commodities like jamun, startups first have to communicate the basic value proposition to a large consumer base, which can be challenging and expensive. Awareness and consumer-focused campaigns are therefore needed to build demand and make it easier for new brands to enter the market.

GI STATUS OF JAMUN

Market development and value addition also depend on the ability to establish and protect product identity. Jamun stands out among India's forest and horticultural fruits as one of the few to have received GI recognition. It has crossed this threshold twice, both times in Maharashtra. The Badlapur Jamun, grown in the Badlapur area of Ambernath taluka in Thane district, and distinctive for its sweet taste and floral aroma, received the tag in March 2024, following an application by the Jambhul Parisamvardhan and Samuday Vikas Charitable Trust.

The second GI-tagged variety, Bahadoli Jamun from Palghar district, known for its uniquely oblong shape and superior pulp-to-seed ratio, received GI status in December 2023, becoming the 48th product from Maharashtra to do so overall.

The GI registration process for Bahadoli Jamun involved detailed soil testing and fruit parameter characterization supported by Konkan Krishi Vidyapeeth, and was driven in part by the need to address what local farmers described as ‘identity theft’, where traders would pass off cheaper, smaller, sourer jamuns sourced from Nashik or Badlapur as Bahadoli.

These developments are significant but partial: GI protection in India confers legal protection against misrepresentation and unauthorized use, supports premium pricing, and builds consumer trust, but realizing these benefits requires sustained post-registration awareness, enforcement, and market-linkage efforts. So far, these have been weak in practice.

The broader jamun sector, encompassing wild-harvest populations across Rajasthan, Chhattisgarh, Madhya Pradesh, and other Adivasi regions, remains entirely outside the GI framework. This means that the largest volumes of jamun produce and the most economically vulnerable communities continue to operate without any intellectual property protection or place-based identity premium. As with mahua, the gap between the potential of GI designation and its realized economic benefits for forest-dependent communities remains wide.

Conclusion

Jamun’s challenge is no longer recognition, but organization. The fruit already has a place in India’s food and cultural landscape; what is missing is the infrastructure, research, processing, and market linkages needed to turn that familiarity into a viable value chain. The challenge is therefore to build the systems that can connect collection with processing, processing with markets, and market development with greater value capture for producers and forest-dependent communities.

Building a New Future for Jamun

Organize: Identify clusters and strengthen collection.

Preserve : Improve post-harvest handling and cold chains.

Add value: Develop products for specific end users.

Build markets: Move from seasonal consumption to year-round use.

Connect: Link producers, processors, HORECA, and markets.

Value the local: Build stronger identity for Indian wild fruits.

SWOT ANALYSIS

India's heritage agri-foods are rooted in local landscapes, traditional knowledge and generations of use. Many have distinctive nutritional, cultural or ecological qualities and could support better incomes for the communities that produce or collect them. Yet their potential often remains untapped because production is fragmented, processing is limited, markets are underdeveloped and consumer awareness is low.

The SWOT analysis of mahua, galgal, Kandhamal turmeric, and jamun looks at what each product already has going for it, what is holding it back, where new opportunities lie, and what risks could affect its future.



MAHUA

STRENGTHS

Natural superfood: Mahua is a natural, nutritious, and abundantly available forest product.

Cultural connect: Mahua has been part of Indian folk tales, mythology, and diets for centuries, giving it a strong cultural background.

Economic relevance: Across nearly 15 States, mahua is an important source of income for rural communities.

Ecological importance: Mahua is critical to the dry, tropical forest ecosystems of middle India and can survive drought conditions.

WEAKNESSES

Lack of uniform standards: There is no clear safety standard for what constitutes 'food-grade mahua'. Many offerings on digital and retail platforms can create a poor first impression among new consumers.

Lack of consumer knowledge: Urban consumers are either unaware of mahua or primarily associate it with liquor. Mahua as food is not yet well established.

Limited product innovation: The lack of diverse, ready-to-consume mahua food products limits consumer acceptance at scale.

OPPORTUNITIES

Research: Research can help identify different mahua varieties and their nutritional profiles.

Global positioning: India's forest produce can be developed as a distinctive superfood category for domestic and global markets.

Government focus: Odisha, Jharkhand, and Chhattisgarh have projects focusing on food-grade mahua, while Telangana has also announced the outline of a project.

Nutritional security: Mahua has been a source of nutrition for tribal communities for centuries and has potential as a food

THREATS

Stigma: Mahua remains associated with liquor and is sometimes viewed as a food of the poor by urban consumers. Colonial-era restrictions have contributed to this stigma.

Loss of knowledge: Many traditional communities have stopped including mahua in their diets, while knowledge is not being passed down to younger generations.

Climate change: Changing rainfall patterns over the past decade have resulted in increasingly unpredictable flowering seasons.



GALGAL

STRENGTHS

Unique to India: Galgal is a niche citrus found in only a few Indian States, with distinctive characteristics and potential uses that remain to be fully explored.

WEAKNESSES

Limited commercial farming: Galgal is largely collected from the wild or from trees growing in backyards, making value-chain aggregation difficult.

Limited usage and appeal: Galgal is used primarily in pickles and mostly in the States where it grows. Adoption in the HORECA sector remains limited.



OPPORTUNITIES

Non-food uses: Beyond food processing, galgal has potential applications in pharmaceutical, aromatherapy and food-packaging industries.

HORECA adoption: Galgal has not seen much adoption by restaurants, even in its native States. There are, however, emerging exceptions. Naar, a restaurant in Himachal Pradesh that has been ranked among the best restaurants in the world, has included galgal on its seasonal menu, where it has been appreciated by customers.

THREATS

Climate change: Floods and erratic rainfall have affected the natural habitat of galgal, although there are no studies or data to establish the extent of the impact. Wild, indigenous and hardy trees such as galgal are important to hill ecosystems but rarely feature in environmental assessments of development projects.

Deep-seated apathy: Beyond traditional use by local communities, galgal has received limited attention from policymakers and consumers in other States.

KANDHAMAL TURMERIC

STRENGTHS

High oleoresin: While other Indian turmeric varieties have oleoresin levels of up to 9%, Kandhamal turmeric usually ranges between 12% and 15%, with 5.3% volatile oil. This combination of curcumin and oleoresin creates potential across medicinal, cosmetic and culinary applications.

Organic by default: Soil, ecology, and relatively untampered farming practices have ensured that Kandhamal turmeric is mostly organic by nature. Modern tools and yield-improvement measures need to be introduced while retaining its natural farming characteristics.

The unique story: The verdant hills and forests where the turmeric grows, combined with Adivasi farmers who continue to practise age-old farming practices, could position Kandhamal as a niche, prized, and aspirational product.

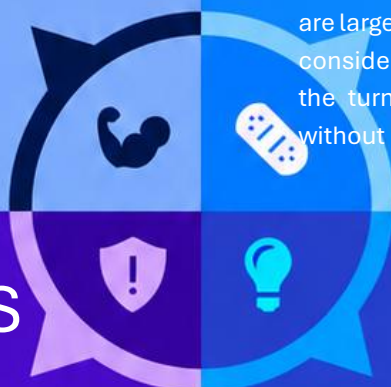
WEAKNESSES

Low farmer visibility: Traders are the key movers of Kandhamal turmeric, while small farmers remain largely invisible to buyers. This makes procurement, intervention, and showcasing of progressive farmers difficult. A study found financial weakness, poor economic conditions and high charges by commission agents to be major constraints faced by farmers.

Limited value addition: Raw turmeric has an estimated margin of 1%, basic processing has 4%, while oil extraction can take it to 50%. Most Kandhamal turmeric is nevertheless traded in bulk with basic processing.

Lack of modern tools and technologies: From limited farmer data and the absence of a central mandi or processing centre to technologies such as traceability, the value chain needs significant modernisation.

Limited B2C brand value: Consumers outside Odisha are largely unaware of Kandhamal turmeric or do not yet consider it aspirational. Even in B2B markets, much of the turmeric is mixed with Erode turmeric and sold without its Kandhamal identity.



OPPORTUNITIES

Rebranding for oil: Turmeric is primarily associated with curcumin, while Kandhamal's high oleoresin and volatile-oil content remains underused as a market differentiator. Positioning Kandhamal beyond curcumin could create new value.

Visibility: Despite its GI tag, Kandhamal turmeric remains largely absent from retail aisles, e-commerce platforms and wider media. Its distinctive story can support stronger positioning and consumer recognition.

Startup ecosystem: The Lakadong example shows how startups can contribute to branding and premiumisation. A similar ecosystem could bring greater risk appetite, innovation and agility to Kandhamal.

Pharmaceutical and cosmetic applications: Kandhamal's high oil content creates potential for pharmaceutical and cosmetic applications. Research is needed to understand the requirements of these sectors and how the value chain can meet them.

THREATS

Farmers switching crops: Low yields, combined with the success of crops such as corn, are encouraging farmers to move away from turmeric. Mixed cropping can also increase the risk of pesticide residue.

Missing knowledge ecosystem: Kandhamal remains primarily a sourcing centre rather than a turmeric hub with expertise in processing, value addition, market identification and segmentation.

Climate change: Erratic and concentrated rainfall, changes in rainfall timing, thinning forest cover, landslides and warmer winters are threatening the conditions that support Kandhamal turmeric.

Inferior quality turmeric clusters: Despite its distinctive characteristics, Kandhamal turmeric does not consistently command the premium achieved by some other turmeric clusters. This threatens the value chain because yields are low and production costs are high.

JAMUN

STRENGTHS

Natural superfood: Jamun is nutritious, widely available, and already well known and accepted.

Cultural connect: Jamun has been part of Indian folklore, mythology and diets for centuries, giving it a strong cultural story.

Product innovation: An emerging ecosystem is developing new products, with institutions such as BARC and NIFTEM supporting innovation.

WEAKNESSES

Limited commercial farming: India is the second-largest producer of jamun, but little comes from commercial farms, limiting value-chain integration and technology adoption.

Lack of modern tools: Collection remains largely manual and is often done without nets. Few companies have modern processing capabilities focused on the food value chain.

Limited acceptance of value-added products: New products remain largely driven by startups, while limited participation by large consumer brands restricts their scale.



OPPORTUNITIES

Global positioning: India's forest produce can be developed as a distinctive superfood category for domestic and global markets.

HORECA adoption: Jamun pulp has seen limited adoption by hotels and restaurants. Products that can be easily incorporated into dishes could improve uptake.

THREATS

Climate change: Changing rainfall patterns have made flowering seasons increasingly unpredictable.

**PROPOSED POLICY
FRAMEWORK FOR
LIVELIHOOD
REALIZATION FROM
INDIA'S HERITAGE
PRODUCE**



Overview

A country like India has a wealth of biodiversity, culture, and traditional knowledge, much of which is documented in ways that are not recognized by modern and Western systems. In this context, protecting intellectual property rights is extremely important. It is essential for safeguarding the interests of producers and accruing better commercial gains; promoting distinctly Indian goods in the export market; and supporting food security and biodiversity conservation. Towards this, India passed the Geographical Indications (GI) of Goods (Registration and Protection) Act in 1999. The GI system protects the names of products that originate from specific regions and have distinctive qualities or enjoy a reputation linked to the production territory. It also protects India's obligation under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) of 1995.

The fundamental economic rationale behind GIs is that the place of origin lends unique characteristics to a product or produce, serving as a marker of its distinctive quality attributes. This arguably manifests most strongly in agrobiodiversity and food produce that can be directly linked to terroir and provenance. By recognizing indigenous producers as custodians and protectors of the traditional knowledge linked to the produce, GIs give them the opportunity to offer their produce to niche, higher-value markets. This recognition of the link between traditional knowledge and producers also creates a unique story of provenance; in recent times, provenance has fetched greater value than the product alone. By bridging this link, GIs also provide a framework to fulfil another important economic function — reducing information asymmetry between buyers and sellers and creating fairer market conditions.

India's current GI regime rests primarily on the Indian GI Framework based on the Geographical Indication (GI) of Goods (Registration and Protection) (Act) of 1999. Registration and protection are administered by the Geographical Indication Registry under the Department of Industry Promotion and Internal Trade (DPIIT), Ministry of Commerce and Industry. Registration is valid for 10 years and can be renewed for further periods of 10 years each.

In the past few years, India's GI ecosystem has expanded significantly, supported by the legal framework, government interest, and growing public awareness. Through the GI (Registration and Protection) Amendment Rules, 2025, the fee for filing GI applications and related processes was reduced by 80%, and the renewal fee for GI was reduced from ₹3,000 to ₹500. These changes are reflected in the GI registry, and as of 2026, India has over 800 registered GI products, while the number of authorized users has risen from 365 to around 29,000 by January 2025.¹ Besides the Act, India uses other internationally recognized instruments like Trademark to safeguard intellectual property rights.

The GI tag has transformed some products from local commodities into premium global brands, enabling producers to secure higher than standard market rates and unlock structured international supply chains. While the impact is more evident in handloom and handicraft, commodities like Darjeeling Tea, the first product from India to be granted the GI tag in 2004, saw a roughly five-fold¹ increase in price after receiving the tag, demonstrating significant economic gains. Another case is Basmati Rice, which received GI registration in 2010 and saw exports grow from USD 3.2 billion (2016–17) to USD 4.7 billion (2018–19).² The Agricultural and Processed Food Products Export Development Authority (APEDA) facilitated the first-ever commercial sea shipment of 18 metric tons of GI-tagged Mithila Makhana to Australia in August 2026, enabling farmers to realize nearly 18 percent higher returns than prevailing market rates.³ Further, the Ministry of Micro, Small & Medium Enterprises and DPIIT signed an MoU on 5 August 2026 to accelerate the commercialization and global market access of India's GI products. The collaboration seeks to promote

¹ Tea Board of India, 2022

² APEDA 2020

³ <https://www.pib.gov.in/PressReleasePage.aspx?PRID=2296498®=48&lang=1>

quality standardization, wider market access, and digital enablement of GI products, while strengthening the One District One Product ecosystem.



As of 2026, India has over 800 registered GI products



The GI tag has transformed some local commodities into premium global brands

Statement of Problem

Despite having the Act in place since 1999, government efforts at both the Centre and State levels to register produce/products, and cases demonstrating the commercial benefits of GI, several problems plague the Indian GI landscape and prevent the country and producers from maximizing the benefits of the Act.

The Act, while providing a sound basis for GI tagging, focuses heavily on the registration process and does not provide a framework for better livelihood realization for original producers through:

- i) Factoring in the larger pre-registration picture of heritage mapping and conservation;
- ii) Research and technology intervention;
- iii) Capacity development for quality control and maintenance;
- iv) Post-registration benefit sharing;
- v) Better commercialization through marketing and outreach;
- vi) Local and global enforcement;
- vii) Grassroots producer welfare;
- viii) Synchronizing benefits with other existing laws, policies, and frameworks; and
- ix) Monitoring and reporting.

This is even more complicated for agri-forestry-food produce, where production clusters are more spread out than in handloom and handicrafts, are more prone to climate and human interventions, and have more complex value chains.

FRAMEWORK FOR INDIA'S HERITAGE AGRI-FORESTRY PRODUCE

It is thus proposed that India institute a Policy for Heritage Agriculture-Forestry Produce and recognize 'Heritage Produce' as a category that sits a step before GI registration (and other IPR provisions that apply to agriculture-forest produce).

This category will recognize:

- i) Agricultural and forest produce with identifiable, specific characteristics, in particular, those linked to their geographical origin through the interaction between India's unique terroir and its producers.
- ii) Traditional plant varieties that have been cultivated and preserved by local or indigenous farming and forest communities over many generations.
- iii) Produce that relies on ancestral and intergenerational knowledge and is valued for its unique taste, genetic diversity, and resilience.
- iv) Produce managed through time-tested, ingenious combinations of techniques and practices that have usually led to community food security and the conservation of natural resources and biodiversity.⁴

The proposed framework rests on the following premise:

1. India has a depth and diversity of indigenous produce that requires a comprehensive policy that allows the country to plan for and implement measures not just for registering produce under the Act and other IPR provisions, but for maximizing livelihood benefits for producers. This is even more important for Heritage Agri-Forestry-Food Produce for the following reasons:
 - a. India has about 6 macro-climatic zones, 22 designated agro-biodiversity hotspots, 10 distinct biogeographic zones, and 4 biodiversity hotspots, making it exceptionally rich in endemic species of plants and animals.
 - b. This rich biodiversity also gives rise to a unique and rich diversity of food systems, culinary practices, traditional medicinal practices, traditional knowledge, and culture, intrinsically linked to endemic species and climate, thus making them the country's Heritage Produce.

This diversity faces increasing threats from climate change, human activities, and resource exploitation, putting the country's unique Heritage Produce at risk of alteration or loss.
2. With growing climate, competitive trade, and human pressures on farming and forest lands, farmers and producer communities require greater support in finance, research, information, and market access to incentivize the conservation of and benefits from Heritage Produce.
3. Under the current provisions of the Act, the Geographical Indication Registry is a body established under the Central Government, while States often provide support for GI applications. Most Heritage Produce transcends State boundaries, being found or grown across multiple States. As agriculture is primarily a State subject and forestry a concurrent subject under the Indian Constitution, better Centre-State and inter-State coordination and planning would strengthen the protection of Heritage Produce.

⁴ FAO 2011

4. To address these needs, the Policy should begin one step before GI registration and focus on Heritage Produce. This will allow for better planning, coordination, research, and market preparedness for both the produce and its producers.



India's depth and diversity of indigenous produce requires a comprehensive policy that begins one step before GI registration and focus on Heritage Produce

POLICY VISION

To protect the quality and diversity of India's Heritage Produce and give producers a competitive advantage, enabling them to keep traditions and traditional knowledge alive and preserve the country's living cultural and gastronomic heritage. The Policy will also support original producers, artisans, distributors, retailers, and others involved in the GI value chain, while enhancing consumer trust and protecting consumer interests.

POLICY OBJECTIVES

1 To strengthen the **'Heritage Produce'** ecosystem in India with clear policy guidelines, including regulatory and procedural directions for GIs and other IPR instruments and provisions, covering planning, proper use, protection, monitoring, and livelihood realization.

2 To identify, document, prioritize, and protect the names of specific produce to promote their unique characteristics, linked to their geographical origin and traditional knowledge, and to register them under the GI Act or other appropriate IPR instruments and provisions.

3 To generate demand for Heritage Produce among citizens and consumers, and provide an institutional structure to meet the increasing demand for quality Heritage Produce while supporting the conservation of cultural and gastronomic diversity.

4 To operate schemes for producers that incentivize their efforts to produce a diverse range of quality products that can benefit the rural economy, as well as their efforts to maintain quality. Particular attention should be given to indigenous producers, women producers, ecologically sensitive areas, and remote regions, where the farming sector accounts for a significant part of the economy and production costs are high.

5 To provide a framework for better Centre-State, inter-State, and stakeholder coordination in planning for the promotion and documentation of Heritage Produce, and to ensure coordination among departments and ministries so that existing schemes and provisions applicable to Heritage Produce contribute to the Policy objectives.

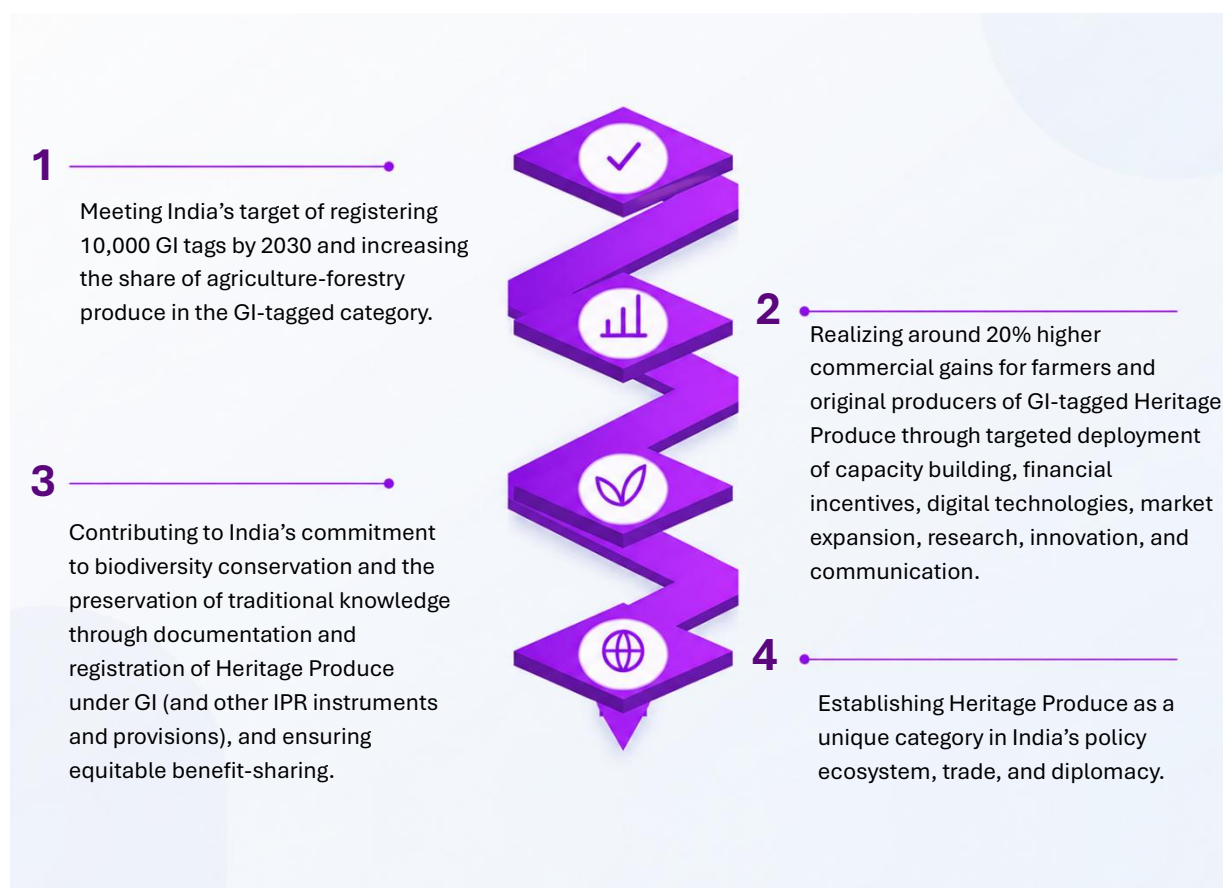
6 To incentivize participation by the private sector and start-up ecosystem through incubation programs and financial incentives for improving value chain processes, clean tech interventions, product research, and market development for Heritage Produce.

7 To increasingly use Heritage Produce and GI in soft diplomacy and trade negotiations between India and other countries, and for better price realization in the domestic market.

8 To strengthen the knowledge ecosystem of Heritage Produce through multidisciplinary documentation in the interest of livelihoods, conservation, and protection, including intellectual property rights, and to enable future scientific exploitation.

POLICY OUTCOME

The measures set out in this Policy are intended to support Heritage Produce and the processing activities and production systems associated with high-value produce, thereby contributing to:



CORE PILLARS OF IMPLEMENTATION AND ENGAGEMENT

Research, Analysis and Market Knowledge

Systematic research and analysis should be undertaken for the documentation, conservation, and propagation of Heritage Produce. Research should focus on areas such as agricultural and forest produce performance and its drivers; seed preservation and long-term gene banking; pre- and post-harvest management; standardized quality parameters; marketable, high-value product diversification using Heritage Produce; public-private partnerships; marketing and trade information; price support policies; women's empowerment; and governance reforms for evidence-based policymaking.

It is important to strengthen the country's adaptive research and technology assessment, refinement, and transfer capabilities to bridge existing technology transfer gaps. For this, technology incubation centers need to be supported to work closely with agricultural extension services, FPOs, SHGs, and JFMCs; end-users such as the HORECA industry; and research labs to enable both top-down and bottom-up flows of

information between farmers, producers, end-users, research scientists, and start-ups. This will promote the generation, adoption, and evaluation of location-specific farm technologies.

Driving Strategic Heritage Produce Growth

Public-private investment in agricultural growth technology, mapping of forest produce, rural and targeted infrastructure development (roads, electricity, warehousing, farm-gate processing, and cold storage), research, and extension will aid the growth of Heritage Produce while reducing rural poverty by strengthening the farm and non-farm economy and entrepreneurship. Promoting organic fertilizers and water conservation practices, improving soil-testing services, strengthening the distribution of critical inputs, especially quality seeds, and developing physical and institutional infrastructure will particularly help resource-poor producers.

The diffusion of targeted, agile, and appropriate technologies, preferably eco-friendly and green technologies, using a program-based approach and participatory mechanisms should be promoted. Heritage Produce would require organic production, intensive quality control, and increased or maintained yields. This would need documentation of traditional farm and forestry knowledge alongside the use of gains from gene technology, the informatics revolution, management knowledge, and agri-technology.

Post-harvest handling, agri-processing, and value-addition technologies and facilities should be developed to prevent post-harvest losses and improve quality through proper storage, packaging, handling, and transport.

To meet the competitive quality standards of exports and high-value markets, decentralized *Quality Assurance* bodies may be set up at the appropriate administrative levels, with standardized quality assurance guidelines to review and adopt quality control measures for registered products within the GI and other intellectual property rights provisions. The bodies will also be responsible for raising awareness and educating farmers and producers on quality control and the ramifications of violations. This should be complemented by technology interventions like traceability, prioritized for GI-tagged commodities, especially those targeted for export.

The above can be done through FPOs, SHGs, and JFMCs and under the existing provisions and schemes of the National Agriculture Policy and the Forest Rights Act 2006, with special emphasis on Heritage Produce and GI-tagged produce.

State Engagement and Inter-Policy Alignment

States, and by extension, Gram Panchayats, FPOs, SHGs, and JFMCs should be closely associated with planning and implementing the Policy, as Heritage Produce primarily includes agricultural and forest produce governed by the States. Agriculture is a State subject and forestry is a concurrent subject under the Indian Constitution. Decentralized implementation, with Central coordination in key areas, including alignment with relevant existing policy provisions, will be cost- and resource-effective, and improve efficiency in targeting the dispersed nature of Heritage Produce clusters.

Complementing this should be institutionalized capacity building and training for the bureaucracy and research institutions on national and international conventions and provisions for the protection of intellectual property rights, as well as supporting legal and technological measures.

Sectoral Monitoring, Coordination and Feedback

As the global and local GI and trade landscape is changing rapidly, close monitoring should be undertaken to track emerging trends, structural, technological, and institutional shifts, the effects of climate change and adaptation, and underlying dynamics in the agriculture and forest economies across geographies, with a focus on identifying challenges and opportunities at the grassroots level. Data collection and reporting on trade and income generation among producers, aggregators, and traders of Heritage Produce, especially GI-tagged produce, should be undertaken and shared annually.

Continuous engagement should be maintained with Ministries, State governments, allied institutes, and external stakeholders to evaluate ongoing interventions, facilitate consultations on key Policy matters, and monitor progress through evidence-based Policy guidance, strategic reviews, and collaborative engagement at national and State levels.

Fostering Dialogue and Stakeholder Participation

An institutional mechanism should be created for periodic dialogue between multiple internal stakeholders, including ministries, State departments, Commodity Boards, financial institutions, and grassroots producer groups, to share policy outcomes and assess knowledge and capacity requirements.

Dialogue between donors, multilaterals, funders, and governments should be factored in to increase targeted funding for technical assistance, and technological and knowledge research on Heritage Produce. This platform should also serve as a forum to understand global advancements, trends, and challenges in sustainable produce, quality control, intellectual property rights, markets, and technology.

Exploiting the Power of Visibility, Information and Communication

The Policy should help producers of Heritage Produce communicate their product characteristics and unique attributes to buyers and consumers, thereby ensuring fair competition for farmers and producers; reliable information for consumers pertaining to such products; respect for intellectual property rights; and maintenance of approved quality standards.

The Policy should involve Indian Embassies and Trade Missions outside of India, media, social media, chefs, and opinion makers in targeted campaigns and promotional events to increase awareness and create demand. Products can be prioritized based on a matrix of parameters such as quality assurance, heritage value, assured availability, and livelihood impact.

Aligned with the National Tourism Policy and initiatives under the Bharat GI banner, such as PM Ekta Mall, Open Network for Digital Commerce (ONDC), and the Government e-Marketplace (GeM), the Policy should promote Heritage Produce trails and tourism, including food tourism in tourism circuits led by women, and state-of-the-art farmers' markets dedicated to Heritage Produce in large cities to create retail opportunities and visibility. This will also create supplementary income opportunities for producers.

To increase adoption of Heritage Produce within the Indian HORECA industry and among Indian restaurants and suppliers in India and abroad, while conserving India's gastronomic heritage, knowledge of Heritage Produce should be included in the curriculum of hospitality and catering schools and universities in India.

LEGAL FRAMEWORK

This proposed framework would build upon existing relevant programs and activities implemented by Central and State governments⁵ while addressing current gaps and suggesting a more holistic and effective pathway for India to maximize gains from its Heritage Produce. The framework will complement and supplement existing provisions, including the Geographical Indication (GI) of Goods (Registration and Protection) Act and other relevant provisions for safeguarding IPR; National Agriculture Policy; sections relevant to Minor Forest Produce (also called Non-Timber Forest Produce or NTFP) in the National Forest Policy of 1988; the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA); The National Cooperation Policy, 2025; the central scheme for Minimum Support Price (MSP) for MFPs managed via TRIFED; the Protection of Plant Varieties and Farmers' Rights Authority Act, 2001; the Biological Diversity Act, 2002 (enacted 2003); Rural Development Policy; and National Policy To Promote Globally Important Agricultural Heritage Systems (GIAHS) Sites in India. It will also complement the relevant global agreements to which India is a signatory and existing priorities, especially the Atal Innovation Mission, Energy Transition targets and Skill Mission.

INSTITUTIONAL FRAMEWORK

The Heritage Produce Policy would require an institutional framework that can support a modern, tech-led approach through inter-ministerial and inter-departmental coordination, stakeholder engagement, monitoring of results, documentation of best practices, and analysis of key policy and budgetary frameworks. It is suggested that the framework uses existing institutions and applies heritage produce as an entry point in existing schemes/activities, wherever applicable. To the extent possible, additional layers and institutions should be created only for purposes of better coordination and plugging in key gaps.

As one of the primary objectives of the Policy is to provide a framework for livelihood realization through the marketing and trade of high-value Heritage Produce, it is suggested that the Policy be placed under the Ministry of Commerce (MoC), with inter-ministerial and inter-departmental committees responsible for planning, execution, and monitoring of each core pillar under the Policy. Further, Task Teams should be formed at the State level for grassroots planning, execution, and monitoring of long-term outcomes and short- to medium-term deliverables under the Policy.

MoC should identify a single accountable nodal agency with a budget line and build on existing institutions that already have a track record in delivering the core pillars, such as APEDA for exports, NABARD for finance, and TRIFED for MFPs.

Development Finance Institutions (DFI) and bilateral and multilateral banks and organizations should be invited to participate in the Committees and Task Teams on a need-basis to bring in finance and knowledge that support the plans and schemes under the Policy. Besides, these institutions should take up capacity-building, awareness, and knowledge mandates that support national priorities and objectives under the Policy.

⁵ For e.g. Revival and Sustainable Intensification of Forgotten Food and Neglected Crops in Odisha; Mukhyamantri Jan-Van Yojana; Jharkhand Opportunities for Harnessing Rural Growth (JOHAR) Project and Community Seed Bank Initiatives.

FINANCIAL FRAMEWORK

The Heritage Produce Policy would require an agile and innovative financing framework that can respond to the diverse, dispersed, and nascent characteristics of value chains and producers.

It is suggested that a Financial Framework to support the Policy be placed under NABARD, preferably with the creation of a specialized lending framework offered through a Special Purpose Vehicle (SPV). It is proposed that this be preceded by the formation of special 'Crack Teams' jointly by NABARD and Commodity Boards/ TRIFED/ Agriculture Departments to investigate produce-specific financial models for Heritage Produce.

This will enable crop-specific financing that is better targeted to the category, with possible instruments like first-loss guarantee cover, warehouse receipt financing, and buyer-linked credit. Digital monitoring tools, along with the involvement of JFMCs/FCOs/SHGs, can be used for due diligence and loan monitoring.

The above should be supplemented with grants and technical assistance from DFIs, bilateral and multilateral banks and organizations, and funders for capacity building, technology interventions, and implementation of innovative models under the core pillars of the Policy. State and Central government schemes and provisions may be used to complement Policy interventions with value addition and livelihood interventions for high-value products.



The Heritage Produce Policy would require an agile and innovative financing framework that considers produce-specific financial models for Heritage Produce



It is suggested that the Policy be placed under the Ministry of Commerce

STAKEHOLDER MAPPING

Government	Research and Development	International Organizations	Private Sector	Media and Knowledge
Ministry of Commerce	Indian Council of Agricultural Research	Food and Agriculture Organization	Agribusiness Industry and Start-ups	Ministry of Information and Broadcasting
APEDA	Department of Science & Technology	World Food Program	Exporters	NITI Aayog
NABARD	Anusandhan National Research Foundation	Multilateral Banks	Farmers/Producers	Universities
TRIFED	Regional Research Laboratories	Multilateral Organizations	HORECA Industry	Chefs
Ministry of Agriculture and Farmers' Welfare	<i>National Institute of Food Technology Entrepreneurship and Management</i>	Bilateral Organizations	Industry Associations	Media Organizations
Ministry of Fisheries, Animal Husbandry and Dairying	<i>Central Food Technological Research Institute</i>	Development Finance Institutions	Venture Capitals and Private Funders	Food writers and Journalists
Ministry of Food Processing Industries	BAARC	International Food Policy Research Institutes	Corporate Social Responsibility Funds	Social media
Ministry of Micro, Small and Medium Enterprises		World Intellectual Property Organization		Hospitality and Culinary Institutes
Department for Promotion of Industry & Internal Trade		World Trade Organization		
Ministry of Rural Development				
Ministry of Cooperation				
Ministry of Skill Development and Entrepreneurship				
Atal Innovation Mission				
Ministry of Environment, Forest & Climate Change				
Commodity Boards				
Ministry of External Affairs				
Geographical Indication Registry				
State Governments				

WAY FORWARD

Way Forward for Institutionalizing Heritage Produce Framework

Recommendation	Institutional Preparedness	Product Preparedness	Market Preparedness and Knowledge
Priority	Initiate multi-stakeholder consultations under the Ministry of Commerce to finalize the Policy, institutional framework, and related Acts, starting with inter-departmental and civil society consultations in the States and culminating in a series of consultations at the Centre. Initiate preparatory actions to create the Financial Framework to support the Policy, preferably under a body like NABARD. Form special 'Crack Teams' jointly with NABARD and Commodity Boards/Agriculture-Forestry Departments to investigate produce-specific financial models for Heritage Produce. Initiate the development of frameworks for fisheries and aquaculture, livestock, processed food, medicinal plants, and	Prioritize Heritage Produce for GI tagging based on value chain strength, preparedness, and conservation status. Conduct commodity-led studies, including documentation of indigenous and traditional knowledge, and gastronomic, cultural, and medicinal heritage, under the Heritage Produce Knowledge Mission. Set up research missions under ICAR- and DST-led institutions to establish quality parameters and standards and support the conservation of Heritage Produce.	Establish Heritage Produce as a unique category through high-level messaging, communication, and announce a 'National Heritage Produce Day' and a 'Year of Heritage Produce'. Initiate an International Knowledge Conference on Heritage Produce and Community Inventories. Document International policies and best practices to strengthen the Policy framework. Set up a Task Force to develop an interactive map on Heritage Produce. Include Heritage Produce pavilions at national and international trade expos, buyer-seller meets and exhibitions for domestic and global marketing of Heritage Produce and GI products.

	wine and spirits for detailed studies and their inclusion under the Heritage Produce category.		
<i>Possible Stakeholders</i>	<i>MoC, NABARD, Commodity Board, TRIFED, NITI Aayog, State Governments, Ministry of Agriculture & Farmers' Welfare, Animal Husbandry & Dairying, Ministry of Fisheries, AYUSH, GI Registry</i>	<i>GI Registry, ICAR and DST-led institutions, International Organizations, Commodity Boards, State Governments</i>	<i>MoC, APEDA, Ministry of Cooperation, Ministry of Information and Broadcasting, International Organizations, Industry Associations, Agribusiness Industry and Start-ups, Media and Social Media</i>
Low-Hanging Fruit	Introduce capacity building and training for the bureaucracy and research institutions through 'Masterclasses' on national and international conventions and provisions for the protection of intellectual property rights, legal provisions, and supporting technology measures.	Set up specialized incubation programs in States for Heritage Produce to support entrepreneurship development and enhance livelihood gains in the farming, minor forest produce, and food sectors. The incubators should work closely with producer groups, agricultural extension services, research labs, and end-users such as the HORECA industry, trade, and retail. Additional funding provisions should be created through bridge funding by donors/ FIs or government funds to support inter-sectoral support.	Improve the communication and visibility of Heritage Produce to buyers and consumers through events and produce-specific campaigns involving media, social media, chefs, and opinion makers. Products can be prioritized based on a matrix of parameters such as quality assurance, heritage value, assured availability, and livelihood impact. Introduce Heritage Produce-specific tables and events involving Indian Embassies and Trade Missions outside of India to tell the story of Indian Heritage Produce in export markets and drive domestic gastronomic tourism. Involve bodies like the National Restaurant Association of India and industry bodies to offer Heritage Produce-specific tables and events for domestic customers.
<i>Possible Stakeholders</i>	<i>APEDA, World Intellectual Property</i>	<i>Atal Innovation Mission, Atal Innovation Centers,</i>	<i>Ministry of Cooperation, Ministry of External Affairs,</i>

	<i>Organization, Multilateral and Bilateral Organizations, State Governments</i>	<i>Industry Associations, Venture Capitals and Private Funds, DFIs and IFIs</i>	<i>Ministry of Information and Broadcasting, National Restaurant Association of India, Media and Social Media</i>
Medium-term	Institutionalize and announce the National Policy for Heritage Produce to support the livelihood realization of high-value and unique heritage agricultural, forestry, fisheries, and aquaculture products. Establish a specialized lending framework for Heritage Produce offered through a Special Purpose Vehicle (SPV). Finalize the institutional framework for delivering modern, tech-led interventions through inter-ministerial and inter-departmental coordination, stakeholder engagement, monitoring of results, documentation of best practices, and analysis of key policy and budgetary frameworks. Create an institutional mechanism for periodic dialogue between multiple internal stakeholders, including Ministries, State departments, Commodity Boards, financial institutions, grassroots producers, donors, and multilaterals.	Support market development through research and innovation in value-added product development through partnerships between start-ups/ enterprises and research bodies.	Include Heritage Produce in the curriculum of hospitality and catering schools and universities in India to increase its adoption in the Indian HORECA industry and among Indian restaurants and suppliers in India and abroad, while conserving India's gastronomic heritage. Tap into livelihoods, skilling, and gender empowerment programs offered by donors/ FIs, alongside CSR funds of corporations working in sensitive areas and/ or geographies producing Heritage Produce.

	Set up an annual dialogue between donors, multilaterals, funders, and governments to increase targeted funding for technical assistance, and technological and knowledge research on Heritage Produce.		
Possible Stakeholders	MoC, NABARD, TRIFED, Commodity Board, NITI Aayog, State Governments, Multilateral and Bilateral Organizations, DST, Multilateral Banks	National Institute of Food Technology Entrepreneurship and Management, Central Food Technological Research Institute, BAARC, Universities and IIT/IIMs, Atal Innovation Mission, Sector Skill Councils, Start-ups	Hospitality and Culinary Institutes, Chefs, Development Finance Institutions, Multilateral Banks
Medium to Long Term	Set up decentralized Quality Assurance bodies at the appropriate administrative levels, with standardized quality assurance guidelines to review and adopt quality control measures for registered products within the GI and other IPR provisions. Provide awareness and education to farmers and producers on quality control and the ramifications of violations, with special focus on women producers.	Implement technology interventions like traceability, prioritized for GI-tagged commodities, especially those targeted for export. Attract public-private investment in targeted, agile, and appropriate technologies for pre- and post-harvest management. Develop targeted infrastructure (green energy, warehousing, farm-gate processing, cold storage), research, and extension to aid the growth of Heritage Produce while reducing rural poverty by strengthening the farm and non-farm economy and entrepreneurship.	Establish a Centre for Excellence on Heritage Produce within an existing institution or as a new institution to drive innovation, support research, produce and disseminate knowledge, and coordinate activities under the Policy. Undertake annual monitoring, data collection, and reporting on the status of Heritage Produce and GI-tagged produce, including trade data. Undertake preparatory and livelihood interventions at the grassroots level, targeting women and indigenous producers by promoting Heritage Produce trails and tourism, food tourism in tourism circuits led by women, and state-of-the-art farmers' markets dedicated to Heritage Produce in large

			cities to create retail opportunities and visibility. Train women and service providers under the Skills Mission and other relevant schemes. This should be complemented by measures to increase visibility.
<i>Possible Stakeholders</i>	<i>GI Registry, NABARD, State Governments, Multilateral and Bilateral Organizations and Financial Institutions</i>	<i>MoC, NABARD, TRIFED, Commodity Board, NITI Aayog, State Governments, Multilateral and Bilateral Organizations and Financial Institutions, Venture Capitals and Private Funders, CSR Funds, Industry Associations</i>	<i>MoC, NITI Aayog, State Governments, Ministry of Tourism, Development Finance Institutions, Multilateral Banks, Multilateral and Bilateral Organizations, Sector Skill Councils</i>

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