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Harnessing Traditional Wisdom: Exploring the Intersection of Indian Millets, Agriculture, and Intellectual Property Rights

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India proposed the year 2023 to be celebrated as the International Year of Millets which was subsequently accepted and declared by the United Nations General Assembly (UNGA).[1] Prior to that, year 2018 was declared as the national year of millets.[2] The agenda was to create awareness and harness the untapped potential of millets for food security, nutrition, and sustainable agriculture. However, whether that alone is suffice to serve the purpose is a moot question. The author asserts that only when different aspect of millets and millet production are duly backed by intellectual property recognition (read protection and support) would a tangible change occur in the awareness bar-graph. By advancing IP protection for millets, the aim is to raise global awareness about their significance and to highlight them as deserving of the attention and recognition they warrant. Merely declaring years as 'Millet Years' is rhetorical; we need tangible actions, such as integrating IP strategies, to truly promote and protect millets for long-term impact. This approach, in the opinion of the author, is expected to position millets as valuable crops, encouraging their cultivation and consumption on a larger scale.

India is a home to a large variety of agrarian crops and has a proportionally a larger workforce involved in it. Among other crops, millets have a significant share in the total agricultural production of the country, making India the largest producer in the world. However, agricultural practices in contemporary times with over-reliance on crops such as rice and wheat have led to a challenge to the soil health, climate change and commercialisation. If India's contextual traditional knowledge is utilised, and millet production is ably supported by the IP regime, such as trademark and geographical indications, it would turn the tide in favour of expanding millet production and encouraging broader adoption, and possibly reducing food security issues.

The paper analyses the present profile of Indian Agriculture and the placement of Indian millets in the same. And how the tool of IP can be used to in protecting these super foods and incentivising the stakeholders engaged in the production of millets.

When we talk of stakeholders—it means especially the farmers or the breeders or the practitioners of associated traditional knowledge, and the ones marketing the various millets and millet-based products to some extent. So, the paper touches upon three disciplines---Agriculture, IP Law and Commerce.

The write-up is primarily doctrinal in nature, but the author has brought in a flavour of empirical into it as for the chapter on conclusions and for suggesting the way forward, interviews were conducted with 20 experts. They were administrators, academicians, policy makers and researchers in agriculture. The data gathered was aimed at identifying the key challenges and opportunities in promoting millet production and adoption in India. The purpose was to assess the potential of leveraging the Intellectual Property Rights (IPR) framework to incentivise stakeholders across the supply chain. This research seeks to provide actionable insights on how targeted policy and IPR strategies could drive sustainable millet cultivation, boost economic incentives, and support India's food security and nutrition goals. A specifically curated interview schedule was used to gather insights into the specific challenges they face in policy-making, growing/marketing millets. The insights gathered from these 20 experts, it is hoped, would strengthen the credibility of our proposals. It was challenging because target population is rare, hidden, or difficult to reach through traditional sampling methods.

Keywords: IP Protection, Traditional Knowledge, Indian Millets, Sustainable Agriculture, Geographical Indications, Bio-Diversity

The present small research hypotheses that by providing intellectual property protection to Indian millets and associated traditional knowledge, stakeholders can be incentivised, leading to increased millet production, developing a commercial value for millets, promoting sustainable agriculture, and addressing challenges faced by farmers. Hence, the following questions have been explored in this study-

a) How can intellectual property protection and traditional knowledge be utilised to incentivise stakeholders and promote sustainable agriculture in relation to Indian millets?
b) What are the key challenges faced by farmers in growing millets and promoting their cultivation?

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c) What is the level of general knowledge and awareness about millets among the literate population?

Millets as Ancient Grains

"The review of historical sources reveals a rich diversity of millets in India, with over 28 distinct species. These include Balbaja, Kangu, Priyangu, Shyamaka, Kodrava, Nivara, Yavanala, Gavedhuka, Chinaka, Uddalaka, Charuka, Chanaka, Venuyava, Varuka, Varaka, Varattika, Todaparani, Madhulika, Nandimukhi, Nala, Nali, Mukunda, Sarabeejam, Shimbira, Nartaka, Prashatika, Ragi, and Kuri. Historical texts provide insights into millet cultivation techniques, traditional practices, and their importance in Indian diets."[3]

In ancient India, millets were mentioned in texts like the Veda, Purana, and Samhita, highlighting their cultural significance and nutritional value. Ayurved[4] in particular, explains millets in detail under Dhanya Varga.[5] Millets have been given many synonyms like cereals (Dhanya), Kudhanya (Inferior among Kshudra cereals), and Trina Dhanya (grass-derived cereals).[6]

Coming to the 21st Century, millets were a staple in local food culture until 50 years ago, but a paradigm shift in India's millet production began in the 1950s. The decline in cultivation area and production is evident in the data, particularly during the Green Revolution.[7] Government policies favouring wheat and rice, along with the Public Distribution System (PDS), further contributed to the downfall of millets (Fig. 1).[8]

On the basis of existing data and also the opinions of 20 experts as gathered for this pilot study, a SWOT on millets reveals the following—

Strengths-Millets are drought resistant crop and they can grow even in semi-arid regions. Millets require 2.5 times less the amount of water as compared to one rice plant.[10]

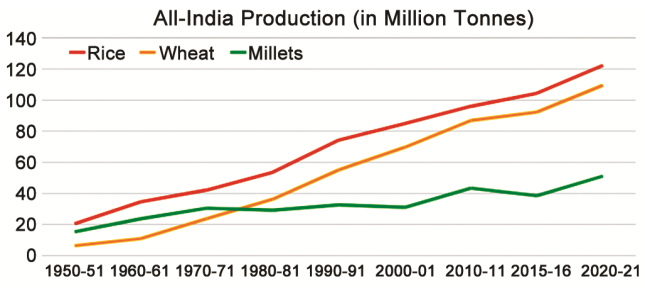

Fig. 1 — Quinquennial comparison of production of rice, wheat, and millets[9]

With various climate estimates like that of World Meteorological Organisation point towards an increase of temperatures of at least 1.5 degree celsius across the world in the next five years, millets remain a great alternative to other food crops having untapped potential. Moreover, it has short cultivation period of around 70-100 days which also has the potential of enabling farmers to cultivate more crops in a year. Thus, millets[11]' reputation of being a climate smart crop presents a good case for their promotion.

Weakness/es—Decline in the area of millet cultivation: Millets were earlier cultivated in an area of 35 million hectares of land. But it is now being grown in only 15 million hectares.[12] They have become predominantly a fodder crop from being staple diets earlier. The reasons range from associated low prestige, lower yield as compared to rice and wheat and an increased dietary shift.

Unorganised farmers with lack of inputs: Farmers growing millets are scattered and are not well-equipped with the technical know-how. Apart from that they are not aware of how they can benefit from the Plant Varieties & Geographical Indications regime, Government schemes and various subsidies etc. The Indian Institute of Millet Research (2014), discussed in later pages, has a daunting task ahead in this context.

Opportunities-India is regarded as the diabetes capital of the world.[13] Morbid as it may sound, this data presents us with an opportunity to tip the scales in favour of millet production and widespread millet adoption. Millets are highly nutrient, gluten-free and have a low glycemic index, thereby aiding in stabilising blood sugar levels for diabetic patients and promoting insulin sensitivity.[14]

Obesity is also a growing concern —Millets are fibre-rich foods which can improve digestion and aid in the process of shredding the extra weight.[15]

Threats-The Minimum Support Price (MSP) is treated as a safety net provided for the farmers in terms of capital, for cultivating any of the 23 crops covered by the mechanism. Out of the enlisted crops, paddy and wheat has more takers among the farming community due to the push given by the green revolution and the existing consumption pattern. This needs to change.[16]

Presently, only 3 millets namely Jowar, Bajra and Ragi are under the MSP scheme.[17] The government needs to capitalise on the millet wave built by it and

walk the talk by bringing more millet varieties into the MSP fold. Further, the government can take initiatives such as providing subsidies to millet producing farmers, conducting campaigns and workshops about awareness of millets, and guiding the farmers about the importance of millet as a crop to boost the millet production.[18] Thus, by promoting the consumption of millet and traditional foods, we can adrdress three issues—food security, improve nutrition, and preserve our rich cultural heritage'.[19]

Having scrutinised the SWOT analysis of millets in India, it's evident that while there are challenges to address and opportunities to seize, leveraging the intellectual property (IP) regime emerges as a strategic pathway forward. By harnessing the protective and incentivising mechanisms inherent in intellectual property laws, we can effectively mitigate threats and capitalise on opportunities within the millet sector. In the subsequent segment, we delve into how the IP framework can serve as a catalyst for the same.

Millets and Linkage with IP

Coming to how IP is linked to millets, the paper has covered TK, GIs and Trademarks, PPVFRA, 2001. The Biodiversity Act, 2002 also has been briefly covered, and forms the start of this IP-Millets linkage.

Millets and Biodiversity Act, 2002

The Biodiversity Act 2002 'sets out to govern the use of all biological resources across the entire country. This would be a tremendous undertaking anywhere in the world; however, it poses a particularly challenging task in a civilisation like ours, which heavily relies on biomass. Moreover, the regulation stipulates that no Indian citizen or corporate body registered in India shall acquire any biological resource for commercial utilisation or survey without prior notification to the State Biodiversity Board.'[20] This seems to suggest that millets cannot be commercialised without due permissions of the Biodiversity Boards etc. However, under section 40 of Act[21], popular millets are likely to be considered as 'normally traded commodities' and hence free trade in popular millets is not a problem. It is the lesser known varieties that face the predicament of (1) getting lost, unless grown and traded (or otherwise made lucrative)[22]; or (2) getting generic upon being traded indiscriminately. This paper submits that it is in the interest of the farming community/farmers, responsible for preserving these millet varieties, that government should find a fine balance between the two options.

In this regard, Geoffrey Heal suggests that biodiversity carries economic importance, and there exist market-driven methods to derive benefits from it, thereby encouraging conservation. However, he cautions that while these strategies can have a positive impact if implemented effectively, they alone cannot entirely solve the issue of biodiversity conservation.[23]Adding, in the same vein, the author submit that complementary non-market measures, such as stringent regulations aimed at preserving endangered species /rare varieties of millets and controlling international trade in them, are necessary for comprehensive conservation efforts. One functional idea is that as the millet production increases and goes comfortably over a target level, the surplus of lesser known or rare millets should become saleable.

This has an economic incentive to revive the production of endangered/rare species of millets. Thereafter, the Access and Benefit Sharing (ABS) mechanism (which refers to the way in which genetic resources may be accessed and benefits resulting from their use shared by users with countries that provide them) should be assiduously applied.

Traditional Knowledge (TK) & Traditional Cultural Expressions (TCE) and Millets

India is one of the identified mega-diverse countries, rich in biodiversity. It is also rich in associated traditional knowledge which is coded in ancient texts of Indian systems of medicines such as Ayurveda, Unani and Siddha. This is in addition to all the non-coded systems which exist as oral undocumented traditions.[24]

As per the World Intellectual Property Organisation (WIPO), TK is that organic element of knowledge that is passed on from generation to generation within a community, not necessarily through any institutionalised or formal means of teaching.[25] In India, there is no exclusive legislation dealing with TK/TCE but the provisions of Access and Benefit Sharing in Biological Diversity Act of 2002 and prohibition of patenting the traditional knowledge under Patents Act of 1970 provides indirect protection to the native TK.

The traditional knowledge, especially in the field of agriculture has provided rural communities in India

with food and health security while also promoting environment-friendly farming practices.[26] Most prominent traditional agricultural practice is millet cultivation which reduces the over-reliance on unpredictable monsoons and promotes sustainable agriculture. In India recently, there is rejuvenated encouragement to shift to millet farming using traditional knowledge in different parts of the country due to the combined efforts of civil societies, governmental policies, academic/research institutions and farmers/farmer organisations. One such initiative is called the RESMISA (Revalorising Small Millets in Rainfed Regions of South Asia), a project born out of the collaborations academic/policy institutions of India and Canada. It had tracked the traditional local varieties of millets of Tamil Nadu across eight different sites and tested them to identify the most promising varieties for each site. Under the project, the indigenous knowledge on millets including the different millet varieties, crop production and harvest practices were documented and recipe contests for women were held, to unravel the traditional millet recipes consumed by them for generations.[27]

In the context of Millets, the most prominent traditional agricultural practice is millet cultivation which reduces over-reliance on unpredictable monsoons and promotes sustainable agriculture.

So, how millets are sown, what is the weather window in which each of them should be harvested, how some of them can practically grow on neglect, which ones can withstand drought and water-logging conditions—all is critical knowledge that merits systematic documentation. The Indian Institute of Millets Research[28] has made significant strides in genetic resources, crop improvement, biotechnology, seed science, crop health, and various other areas. Recognition, training, and capacity building efforts have also been noteworthy. However, expanding these activities to encompass lesser-known millet varieties could enhance India's status as a millet superpower.[29]

Another aspect of TK and millets is linked with the traditional ways in which various millet foods and savouries have been prepared since ages. Attempts have been made by the Indian Institute of Millet Research to capture some recipes in a booklet available now on their website, since 2021.[30] Almost all the respondents of the Google Form survey conducted as a part of this pilot, mentioned one or the other delicacy which their household was familiar with. It reflects on how systemic the usage of millets in everyday lives of Indians is. This becomes a strong ground for their protection, promotion and capitalisation.

The third aspect that needs mention is how millets have been used by the past generations in Ayurveda in providing (1) a rich nutrient profile; (2) combating diabetes, (3) supporting weight management. It must be highlighted that even the TKDL (Traditional Knowledge Digital Library) search did not produce any result here. This is crucial to highlight and should be considered as a cause of concern if we have learnt from the Karela and Haldi episodes.[31]

Presently, the primary issue that raises concern in the efforts to provide protection to millets is the lack of sufficient information on the diverse varieties of millets cultivated across regions in the country. Maitra[32] and Tadele[33] both highlight the potential of millets, particularly brown-top millet, in combating climate change and ensuring food and nutritional sustainability. However, they also note the lack of sufficient research and information on these crops. Goron[34] further emphasises the need to preserve and utilise the genetic diversity of small millets, which can be valuable for crop improvement. These studies collectively underscore the need for more comprehensive research and information on the diverse varieties of millets cultivated across regions in the country.

The author submits that one of the probable solutions is to create a genetic database by recording the indigenous millet varieties across the country through a field study and conversation with the focus groups, supplemented with DNA bar coding of each variety to identify and distinguish them from other varieties with ease. Nepal has already done it.[35] Incorporating barcoding of the plant varieties with their DNA specification can further augment our efforts to trace and record rare varieties of crops/millets cultivated by farmers and communities across the country. This can help India heighten her standing in the field of sustainable agriculture by sharing its traditional knowledge on millets with the rest of the world while simultaneously providing benefits to the original community to incentivise them.

Additionally, during the exercise, one may also create a log of the farmers/communities who have traditionally helped in preserving (by growing) the gene pool of these varieties.

Protection of Plant Varieties and Farmers Rights Act 2001 (PPVFRA), and Millets

The object of the Protection of Plant Varieties and Farmers Rights Act 2001 is to establish an effective system for the protection of plant varieties, the rights of the farmers and plant breeders and to encourage development of new varieties of plants. It also recognises the protection of the rights of the farmers in respect of their contributions made at any time in conserving, improving and making available plant genetic resources for the development of new varieties

The legal regime in India protecting any innovation in millet and millet technology is an amalgamation of the Patents Act, 1970 and the PPVFRA, 2001. This is because while any genome sequencing or any process that can be considered as innovation is protected as patents; the new variety of millets and accompanying farmer's rights are offered protection by the latter.[36]

The Act seeks to establish an effective system for the protection of plant varieties, the rights of the farmers and plant breeders and to encourage development of new varieties of plants. It also recognises the protection of the rights of the farmers in respect of their contributions made at any time in conserving, improving and making available plant genetic resources for the development of new varieties. This protection facilitates the growth of the seed industry in the country and ensure the availability of high-quality seeds and planting materials to the farmers.[37]

However, upto June 2025 out of the 9210 varieties of crops registered under the Act, only 654 were for millets, 377 for wheat, 4002 for rice, 747 for legumes and 273 for fruits. The rest were for vegetables, sugar crops, oilseeds and fibre crops. This data does not present a happy picture. Less than 8% of total registrations fall under the millet category. With a whopping 4002 for rice, clearly the focus is on rice varieties.[38]

An insignificant number of registered varieties for millets can hinder the development and promotion of diverse millet varieties under the PPVFRA, by dampening the spirit of farmers who have been experimenting with millets. This neglect can discourage farmers from conserving or developing these lesser-known varieties due to the absence of legal protection and incentives provided by the Act. If crops which are more commercially viable ARE REGISTERED MORE, they are likely to be produced more—which means that the economic potential of millets remains un- tapped and their nutritional profile remains neglected in a substantial way.

The solution to this has been proposed while discussing the trademark portion, which is a couple of sections away.

Geographical Indication (GI) and Millets

While the PPVFRA 2001 focuses on varieties that have been experimented with, GI's deal with varieties that are a gift of nature.

Section 2(1)(e) of the Geographical Indications of Goods (Registration and Protection) Act, 1999 defines Geographical Indications.[39] In the context of Indian millets, a Geographical Indication (GI) can be seen as a label or indicator that confirms the origin of millet products in a specific region or locality within India. It applies to agricultural goods, such as different varieties of millets, where the distinctive qualities, reputation, or characteristics of the millets are essentially linked to their geographical origin. Furthermore, for instance, if the millet products are processed or prepared goods, at least one of the activities involved in their production, processing, or preparation must take place within the identified territory, region, or locality. GI, being a collective right has enormous potential for the upliftment of poor and marginalised sections of society. It also can provide livelihood of local communities that specialise in growing millets or making millet-based food products, unique to their geographical location.[40]

Unfortunately, millets, having distinctive qualities, reputation, or where characteristics of millets are essentially linked to their geographical origin are yet to be recognised in India, in the true sense of the expression.

As of June 26 2025, the total number of Registered Geographical Indications (GI) is 697 and among those only 4 (all agricultural products) are devoted to millets. They are Mangalwedha Jowar of Maharashtra[41] Uttarakhand Chaulai[42], and Uttarakhand Mandua[43] and Uttarakhand Jhangora (barnyard millet).[44] Details of the same are as follows-

1. The Geographical Indication (GI) registration number 472 pertains to Mangalwedha Jowar, a designation that recognises a specific variety of sorghum cultivated in the region of Mangalwedha, Maharashtra, India. Registered by the Maldandi Jowar Vikas Sangh, the application for GI status was filed on 26th March 2014 and subsequently granted. Falling under Class 31, which typically covers agricultural products, Mangalwedha Jowar signifies

its agricultural origin and unique characteristics attributed to the geographical area of Maharashtra. Notably, the GI status extends to 25 authorised users, ensuring that the benefits of this recognition are shared among stakeholders involved in the production and promotion of Mangalwedha Jowar within the designated geographical area.

2. The Geographical Indication (GI) registration number 835 has been granted to Uttarakhand Mandua, acknowledging a specific type of millet grown in the region of Uttarakhand, India. The application was submitted by the Uttarakhand Organic Commodity Board (UOCB) and was registered on 18th February 2022. It has the highest amount of calcium (344 mg%o) and potassium (408 mg %).

3. The Geographical Indication (GI) registration number 841 has been granted to Uttarakhand Jhangora, a type of millet traditionally cultivated in the hilly areas of Uttarakhand, India. It is a seed and not a foodgrain. The application was filed by the Uttarakhand Organic Commodity Board (UOCB) and registered on 1st March 2022. Uttarakhand Jhangora is known for its use as a substitute for rice, particularly in dishes like Jhangora porridge, locally known as Madira ki kheer. The millet, with its hard-cellulosic layer, matures within 45 days under optimal weather conditions and is processed to remove the husk layer, yielding millet rice. Rich in dietary fiber, Uttarakhand Jhangora offers nutritional benefits to consumers.

4. The Geographical Indication (GI) registration number 863 has been awarded to Uttarakhand Chaulai (Ramdana), also known as Amaranth in Hindi, by the Uttarakhand Organic Commodity Board (UOCB). Filed on 11th April 2022 Uttarakhand Chaulai is celebrated as one of the oldest grains on the planet. Amaranth, locally termed chaulai, is a short-lived perennial plant gaining again gaining popularity due to its numerous beneficial and nutritional qualities. True to its name, it is recognised for its fast-growing nature and ability to thrive under diverse growth conditions, including drought, salinity, alkalinity, or acidic soil conditions.

Foodgrains getting the tag of GI is new in India and we have a lot of catching up to do because there is a glaring disparity of GI recognition within foodgrains (more than 22 varieties of rice is registered as GI). These point towards the fact that Geographical Indication tag have not been efficiently capitalised upon so far for millets.

As per section 11(1) of the Geographical Indications of Goods (Registration and Protection) Act, 1999 in order to register a concerned good for Geographical Indication, 'any association of persons or producers or any organisation or authority established by or under any law' should apply in writing to the Registrar and according to Section 11(2) one of the basic requirements that the application should contain is the 'origin of the good' from the concerned territory; their specific quality, reputation or other characteristics which are exclusively due to the environment of that territory with its 'inherent natural or human factors'. This also requires proof that the good has originated from that particular territory.

For instance, taking the example of the GI-tagged Navara Rice, the applicants, Navara Rice Farmers Society provided the reference of Navara found in ancient ayurvedic scripture like 'Susrutha Samhitha' which dates back approximately to 400-200 B.C and in 'Ashtanga Hrudaya' dating back approximately to 600 A.D. This was accepted by Registrar.[45]

The Google form survey results show a clear consensus among the majority of respondents that millet and millet-based products should be protected with Intellectual Property Rights (IPR) such as a Geographical Indication (GI) tag. This indicates a strong belief among respondents in the importance of recognising and preserving the unique qualities and characteristics associated with millets from specific geographical regions.

What can be achieved with GI tagged goods and what remains to be accomplished— example of GI-tagged Navara Rice

The Navara variety of rice of Palakkad was given the GI tag with the expectation that the crop would be able to fetch higher prices because of its peculiar way of growing without any fertilisers, and its ability to retain its various medicinal varieties, thereby incentivising farmers to cultivate this traditional variety of rice. With limited awareness, some farmers have fetched as high as Rs 300 per kilo of Navara Rice with a dedicated customer base by capitalising on the GI tag perks. On the other hand, uninitiated, and small-scale farmers, without any awareness receive around Rs 30 per kg for the same variety.[46]

To fully benefit from the GI tag, it is crucial for farmers to be informed about its implications and market advantages. Access to information, training programs, and support systems that enhance

farmers' understanding of the GI tag and its potential benefits would be essential. This would enable farmers to make informed decisions, establish market linkages, and negotiate better prices for their produce.[47]

Trademarks and Millets

Trademarks can play a great positive role in millet production as well as its protection albeit indirectly. Trademarks have a significant influence on consumer choices and can impact minds in powerful ways. They often play a crucial role in shaping consumer behaviour and preferences.

To elaborate, using trademarks can be instrumental in making a dent in vicious cycle of low demand - diminished production—low consumption for millets. By encouraging producers to prioritise millets as a lucrative option, trademarks can play a pivotal role in transforming the foodgrain landscape.

For example, in the year 1954, Britannia® became the first brand to bring sliced bread to the dining tables of India. Through extensive marketing campaigns and brand positioning, Britannia successfully redefined the perception of bread as a breakfast staple in Indian households. Likewise, Kellogg's® has been patiently working its way to significantly change the way urban India consumes its breakfast. So amongst other things, it is also upon brand building and positioning to bring a millets into the mainstream.

At the same time, it is submitted that a successful usage of trademarks to benefit millet production lies further in providing proper marketing facilities for the producers of traditional millets. Small and Medium Enterprises (SMEs) and co-operative societies comprising millet producing farmers should be promoted for boosting and altering production preferences, instead of huge conglomerates who might have exploitative tendencies.[48] Empowering the rural economy and community empowerment should be the idea.

Recent unpublished research in the context of GI tagged products highlights[49] concerning trends: non-TK holders profiting from TK products, intermediaries exploiting by collecting and reselling at inflated prices, and TK holders diverting to modern substitutes for higher demand. In the case of millets, the outlined challenges are particularly pertinent to prevent their capture by large conglomerates of the food-grain market. The urgency of safeguarding millet cultivation and trade needs to be underscored to ensure that the benefits of millet sales directly help the communities and cultures that have cultivated them for generations.

One success story is The Timbuktu Collective's organic agriculture programme in partnership with the Dharani Farming and Marketing Cooperative, that brings traditional, nutrient-rich and climate-resilient crops (including millets) back into popularity. Further, then the association/co-operatives can also apply for a collective trademark. A collective mark is a special type of trademark used only by members of a group, like an association or cooperative. It can be a word, symbol, or design representing the group and must be registered like other trademarks.[50]

Another success story is that of the Thennala Agro Farmers Producer Company Ltd. owned by the Kudumbashree farmers of Thennala Panchayat in Malappuram district. The 'Thennela rice' even with its good brand value and demand, couldn't generate enough revenue through sales to the middlemen. So, in 2015 a group of five hundred women farmers took the initiative and formed this producer company under a Self-Help Group called Kudumbashree with the main aim of production and sales of good quality organic rice under the brand of 'Thennala rice'. The company has made tie ups with many agencies across Kerala for the marketing of rice and rice products at competitive rates.[51]

The idea of collective trademark for traditionally grown Indian millets through a well -established network of co-operatives societies/unions and farmer organisations would help in branding. Collective trademarks are a way to build reputation and increase market visibility for small producers. The idea behind registering a collective trademark could be to create high quality, environmentally friendly products in rural areas while ensuring harmony with the local environment. Through the creation of the mark and the establishment of strict criteria that must be followed by the manufacturers using it, not only support for rural areas is ensured, but also the development of a new product that has its own advantages. At the same time, a collective trademark that is respected and recognised would enable small-scale producers to operate effectively in a competitive market.[52]

Sustainable Future with Millets

As a by- product of positioning TMs (trademarks) cleverly India, by promoting millet production can hope to achieve the Sustainable Development Goals (SDGs). SDG 2, 3, and 13 in particular.

SDG 2 stating zero hunger can be fulfilled as millets are highly nutritious and enriched with essential minerals and vitamins[53], which are lacking in the diet of poverty ridden population.

Good health and wellbeing, as given in SDG 3, can also be promoted as consumption of millets prevents various chronic diseases and stimulates general wellbeing.[54]

Millets can play a significant role in combating climate change as given in the SDG 13.[54] As millets consume less resources to produce higher yield. For example, it requires approximately 200-300 litres of water to produce 1 kg of millet, whereas a whopping 8,000-12,000 litres of water is required to produce 1 kg of rice and wheat.[55]

Moreover, millets are extremely nutritious not only to humans; rather all the typical by-products of millets serve as an additive to birds and cattle feed. They play an integral role in nurturing the soil and improving its fertility and texture, thereby increasing the yield and providing high returns to farmers.[56] Thus, there is a need to spread awareness among farmers and consumers about the benefits of this super grain to achieve the goal of a sustainable environment.

Odisha's state government is one of the first states in India to take action in restoring millet farming and consumption by introducing Odisha Millet Mission (OMM) in 2017 but faced several challenges.[57] To resolve the issues, a community-based organisation (CBO) has joined hands with the government and due efforts are being taken to raise awareness about the benefits of millets, implementing market integration, providing more subsidies to farmers, etc.[58]

The Odisha's Millet Mission (OMM) in promoting millet farming and consumption can serve as a model for other states to follow. India can enhance self-sufficiency in food production, reduce reliance on imported grains, and build a sustainable and resilient agricultural system for the future.

Best Practices in Millet Production and the Way Forward

In-depth conversations /interviews conducted with 20 participants, including academicians, legal practitioners, research scholars, government policymakers, and administrators regarding various contours of increasing Indian millet production and usage through incentivising all stakeholders in the process via the IPR regime, resulted in us compiling a few points in best practices. They are as follows-

1. There was agreement on the need to incentivise millet farmers/producers through establishment of local millet hubs across different regions in the country. These millet hubs would assist local millet producers in securing exclusive rights to sell their indigenous varieties through Intellectual Property Laws. The millet hubs, it is proposed should also provide fair opportunities to the concerned farmers to sell their produce to government agencies and ensuring the MSP

Some participants from the public policy arena had a counter-opinion, advocating for efforts to strengthen the present crop procurement system, including millets, and incentivise stakeholders rather than establishing a separate hub. They believed that an inclusive procurement system akin to the old one would promote millets to be in the mainstream. Here, the participants pointed out that in addition to popular millets like Ragi, Jowar, and Bajra, a plethora of micro millets also need promotion.

2. "Every idea sounds good till the time the devil arises which was lying between the details".[59]

Most of the experts opined that IP protection to millets though GIGA, 1999 and PPVFRA 2001 would be challenging because difference that once existed between mainstream popular millets and millets that are geographically constrained has thinned down at many places. This is because of careless mixing of seeds, inadvertent natural hybridisation etc. that has resulted in loss of features of the parent gene of millets. These finer details have to be worked upon for the sole purpose of determining a structured framework for sharing of the benefits for indigenous communities that were involved in conservation and cultivation of Indian varieties of millets.

3. Some of the interviewees, from the Department of Agriculture of a Southern State of India, raised a concern about the potential loss of landraces. They elaborated that although some farmers preserve their landraces, seeds tend to deteriorate without cultivation for more than 6 months, leading to the extinction of many landraces and thus affecting millet biodiversity. So, millet varieties that were actually unique—we might have already lost them. Hence, we need to act urgently on DNA barcoding.

4. The participants who were government policymakers and administrators shared their difficulty in convincing the indigenous community who were involved in the conservation of rare variety of indigenous millets for promotion at a large scale.

They pointed out that there are intricacies in persuading the farmers to scale up the production for particular variety of lesser known millets. So, the government would have to work really hard for creating suitable conditions for their revival.

5. Establishing robust inspection bodies is crucial for safeguarding the quality and authenticity of products associated with Traditional Knowledge (TK) and Geographical Indications (GI). These bodies play a pivotal role in maintaining the original characteristics outlined in the initial documents.The Inspection Structure should be composed of key stakeholders such as the promoting organisation's (SME, Company or Cooperative) leadership, farmer/ indigenous community members, GI or TK experts, and agriculture specialists, wherever needed. Such bodies may also be tasked to formulate terms and conditions for the use of brand names. The transparency and effectiveness of these inspection bodies are instrumental in upholding the integrity and quality of TK and GI products, particularly as their trade expands.

6. While half of the participants supported private investments in promotion of indigenous varieties of millets, the other half of the participants were of the opinion that the entry of private investments in the research and development of indigenous varieties needs to be regulated. The latter maintain that any IPR protection to the indigenous millet varieties should be secured by government agencies /farmers involved in research. This is to ensure that millets remain as public common good rather than a cartelised commodity controlled by private corporations.

Conclusion

It's crucial to acknowledge the significance of intellectual property (IP) considerations in millet cultivation and preservation. Strategies such as documenting landraces and promoting traditional knowledge protection contribute to safeguarding the IP rights of millet farmers and indigenous communities. Collaborative efforts with governmental and non-governmental entities can facilitate the establishment of legal frameworks and support systems to ensure fair recognition and benefit-sharing mechanisms. Integrating IP considerations into millet initiatives not only preserves cultural heritage but also fosters sustainable agricultural practices for future generations.

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