

Protection of Traditional Knowledge in the State of Assam and Role of Geographical Indication

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Abstract: Developing countries are constantly looking for the best feasible way to protect their traditional knowledge and traditional cultural expressions because in several past experiences they have realized that if this valuable knowledge remains unprotected, custodians of such knowledge will lose ownership over the same. Assam, a North Eastern state of India is a rich biodiversity hotspot. Due to the close association with nature, indigenous people of Assam have excellent traditional ecological or medicinal knowledge, traditional agricultural knowledge, traditional fishing, and hunting knowledge, and traditional cultural expressions or folklore. But due to the lack of awareness among the people and in the absence of a proper mechanism to preserve and protect this valuable knowledge several traditional knowledge are on the verge of extinction. In the quest of protecting traditional knowledge from misuse and at the same time recognizing those age-old custodians of such knowledge as the owner of such knowledge, Geographical Indication has evolved as a potential mechanism. It is because geographical indication as an instrument possesses some specific characteristics such as community ownership; which are relatively more suitable for the customary traditional knowledge of indigenous people.

Keywords: Traditional knowledge, Traditional cultural expressions, Geographical indication, Assam, Handloom, Handicraft, Medicinal knowledge.

1. Introduction

In the ancient era, knowledge was regarded as a symbol of honor and respect. However, with the evolving concept of a knowledge-based economy, knowledge is no longer treated only as a sign of societal position rather as a property, which has great economic potential. The future of a nation is not dependent only on new innovation and invention but also on the age-old traditional knowledge and practices which is the result of century-long observation, experiment, and research of the indigenous communities. Knowledge or practice observed and preserved by a community or a small group of people for years in its virgin state or sometimes added value to the prevailing knowledge can be a valuable asset for them. In developing countries where people are mostly dependent on nature, traditional knowledge plays an important role in healing ailment, food production, and other means of their livelihood [1]. Indigenous and local communities are mostly situated in areas that are biologically rich and diverse with abundant natural resources and hence possess knowledge about many

undiscovered biological compounds of plants that can cure various maladies. Pharmaceutical companies as well as many other industries have realized the great value of such knowledge. The foreign health care industries which are constantly working on new technologies to assess the chemical makeup of plants have realized that by using the traditional knowledge of indigenous people they can make their research more efficient and less expensive [2]. Demand for the medicinal plant is increasing constantly because they are non-narcotic, have no side effect and they are easily available at a cheap rate. Therefore, knowledge of indigenous people about the beneficial use of plants, vegetables, flowers, fruits has great economic value. But due to their lack of awareness, they see traditional knowledge only as an identity of their community and not as a pathway for social and economic development [3]. Since no property right is assigned to the knowledge holder, such knowledge is often taken by an unauthorized party without due recognition and benefit-sharing and get patent on invention using such indigenous knowledge. Moreover, concerning Artistic work, craft, textile, jewelry, terracotta, pottery, traditional dresses of indigenous people also have great economic value. Specially, such traditional items are in high demand for tourists who have a great love for ethnic items. Ethnic items reflect their rich cultural aspects unique to their community. They not only portray their cultural uniqueness but also encourage the tourist to purchase these items commonly prepared out of organic resources and usually handmade. But the great threat they are facing nowadays is the misrepresentation of such valuable cultural assets by some dishonest commercial operators. Some machine-made cheap qualities similar looking products are now competing with the authentic products, which poses a threat to the cultural integrity of a community. These growing concerns for protecting traditional knowledge as intellectual property has raised a practical question regarding the adequacy of the current IPR system to protect traditional knowledge [4]. Some argue that traditional knowledge falls in the Public domain hence beyond the scope of Intellectual property law protection.

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2. Geographical Indication and Traditional Knowledge: An Inter-Relation

Traditional Knowledge deserves recognition and protection as an economic asset because they have great monetary value and potential to improve the economy of developing countries. The protection of traditional knowledge in IPR is sought in two forms; defensive protection and positive protection. The Defensive protection prevents the grant of intellectual property rights protection on traditional knowledge-based innovations and creations to any party other than the custodian of such traditional knowledge. Various defensive mechanisms evolved to safeguard the traditional knowledge from being patented are documentation of traditional knowledge, disclosure of origin, prior informed consent, etc. Positive protection of traditional knowledge on the other hand grants the traditional knowledge holder rights to promote and protect traditional knowledge and to take action against and to seek remedies for misappropriation of traditional knowledge. Positive measures of protecting traditional knowledge include; application of existing IPR mechanism, designing Sui generis regime within existing IPR, and designing a stand-alone Sui generis system [5].

Geographical Indication has evolved as a potential mechanism to protect traditional knowledge because like traditional knowledge Geographical Indications usually are "not new" contributions to the society; rather they are the custodian of age-old knowledge and attendant cultural values. Contrary to other forms of IPR, the most fascinating attribute of Geographical Indication is that the exclusive right is vested on the entire community living and producing in that region from where the geographically indicated product being originated. In the case of Geographical Indication, it is impossible to identify an individual right holder because that knowledge has already been shared and is in the public domain. This relative impersonality of right does not make Geographical Indication a weak form of IPR because similar to other forms of IPRs, Geographical Indication also confers to its legitimate users the "exclusive right to use this distinctive designation, which grants it additional economic value [6]. Moreover, Geographical indications have significant potentiality as a tool to protect traditional knowledge and cultural expression because they are not transferable from one owner to another owner and are not subject to unconditional control by a private owner. Moreover, it can be maintained as long as the collective tradition is maintained. Geographical Indication however does not protect the specific knowledge and technology as such, but prevent the false use of geographical indication.

At the fifth session in the year 2003 of the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore, it was pointed out that some traditional cultural expressions (TCEs), such as handicrafts made using natural resources, may qualify as 'goods' which could be protected by geographical indications [7]. Article 1(a)(iv) of the Substantive Provisions of the WIPO for the Protection of Traditional Cultural Expressions/ Expressions of Folklore provides that "traditional cultural expressions" or "expressions of folklore" can be tangible expressions, such as protections of art, in particular,

drawings, designs, paintings, carvings, sculptures, pottery, terracotta, mosaic, woodwork, metalware, jewellery, baskets, needlework, textiles, carpets, costumes, handicrafts, musical instruments, and architectural forms [8].

These tangible expressions or 'handicraft' may qualify as goods that could be protected by geographical indications if they present the necessary qualities for geographical indication protection. Such qualities would usually include a symbolic association between the handicrafts or artisanal product and a particular culture which acknowledges the influence of tradition in its creation. Furthermore, these handicrafts would be produced either completely by hand, or with the help of hand tools or mechanical means, as long as the direct manual contribution of the craftsman remains the most substantial component of the finished product. They would be produced using raw materials from sustainable resources and their distinctive features could be utilitarian, aesthetic, artistic, creative, culturally attached, decorative, functional, traditional, or have a religious or social symbol. Finally, the creative activity would occur within a small group or community-based environment.

To fulfill the obligation under TRIPS, India enacted the Geographical Indication of Goods (Registration and Protection) Act 1999, to provide registration and for facilitating adequate protection for GI. Registration of a geographical indication in its country of origin is of utmost importance because as per Article 24(9) of the TRIPs Agreement other WTO member countries are under no obligation to protect a geographical indication if it is not protected in the country of origin. The Geographical Indication Act, 1999 has specified three categories of good which will be covered under this Act. They are agricultural goods, natural goods, and manufactured goods. To get protection under this Act applicant has to establish a triple connection among the product, its place of origin and quality, reputation, and characteristics related attributes.

3. Traditional Knowledge in the State of Assam

Assam, one of the North-Eastern States of India, has a rich heritage of traditional knowledge. It is one of the biodiversity hotspots of the world. People of this region are very much familiar with the plant varieties of their ecosystem and their usages. Assam is also a culturally diverse state, with lots of indigenous people having their different age-old cultural practices. The region is famous for handloom weaving, carpet making, masks, painted wood vessels, bamboo and cane crafts, woodcarvings, jewellery, hand-made pottery, brass cutting, silver works, wood-work, pottery, fiber craft, etc. Traditional knowledge in the state can be discussed broadly under the following four headings:

1) Handloom

"Assamese women weave fairy tales in their clothes." – Mahatma Gandhi. The handloom industry of Assam is known for its rich tradition and it is a part of the Assamese culture. No house in the villages of Assam is without a loom in which traditional clothes are produced. It also plays a very important role in the socio-economic development of the State. Assam is a proud owner of more than 13.00 lakhs looms out of the total

28.00 lakhs looms in the country. But, despite having such a close connection with the traditional culture and heritage, the handloom industry of Assam has not been flourished at the desired level [9]

Since the Ahom regime (1228-1826) the tradition of weaving was popular among Assamese people. Even during the kingdom of Pratap Singha (1603-1641), it was an obligatory duty for every household to weave and spin. There were many Royal looms exclusively for the Royal families. Ahom kings created separate administrative machinery to look after the silkworm rearing, reeling of silk yarn, & weaving of silk fabrics. King Rudra Singha (1696-1714) also brought new ideas, techniques & design of the art of weaving from other parts of contemporary India through his envoys and encouraged the Assamese weavers to practice those ideas. These types of encouragement made by the Ahom kings gave a boost to the Handloom industry of Assam [10]. Sualkuchi is a small town situated on the north bank of the river Brahmaputra, about 35 km from Guwahati. For its large number of cottage handloom industries, it is also known as the "Manchester of Assam". Sualkuchi has been traditionally renowned to be the "city of clothes" (Vastra Nagari) in the region. The place has a very ancient and rich origin regarding the production of a variety of elegant and sophisticated cloth materials like Muga, Paat, Eri, Nuni Paat, Gamocha, and as such. In every household of the town, looms are visible. Sounds of the moving looms are audible from a distance when someone approaches the town. This sound somehow is the identity of the State of Assam. Assam contributes 95% and 65% of the country's total Muga and Eri production respectively [11].

2) *Muga Silk*

One of the rarest Silks in the world is the "Muga" silk from Assam. It is produced only in Assam and nowhere else. The fact that sets this Silk apart from all other versions is that it is golden yellow in colour. The word "Muga" means yellowish in the Assamese. The source of it is the Muga Silkworm which goes back to the age of the dinosaurs and is so sensitive that it cannot tolerate even the most minimum of pollution levels. Muga Silk is made from the semi-cultivated silkworm named *Antheraea assamensis*. It is organic and natural and has the strongest natural fiber. Muga Silk is the most expensive type of Silk and is used for making products only for the upper segments of the market. One of the major highlights of Muga Silk is its longevity. It is said that generally, a Muga Silk fabric outlives the wearer. Muga Silk is known for its resilience. It can be given a fine texture by dry ironing it in a damp state or it can attain a crushed look by not getting ironed. This is one unique fabric where the golden luster increases with age. Any type of embroidery by a thread can be done on it. Most importantly, while it has got a naturally golden luster and does not need any dyeing to be done, it is still quite compatible with most dyes. Assam received the Geographical Indication (GI) tag for Muga silk in 2007. It was estimated that over 27,878 people were involved in the entire process of production of Muga silk and dress materials at that time. Total production of Muga Silk in Assam in the year 2015-16, 2016-17, 2017-18, is 142 MT, 139 MT, 157MT consecutively [12].

3) *Paat Silk*

"Paat" or Mulberry Silk also occupies an important place in Assam's Sericulture. About, 40,000 families of the state are engaged in the production of Mulberry Silk. In Assam, the Mulberry Silk Worm culture is practiced on a large scale in the districts of Upper Assam. Lakhimpur, Sibsagar, Dibrugarh, and Jorhat districts are the important producers of Mulberry Silk. Assam possesses two indigenous Mulberry silkworm breeds as "Sarupat" (Multivoltine) and "Borpat" (Univoltine). Paat Silk fabric is usually white in colour which can be dyed in different other shades. Since Paat Silk is produced from Silkworms that are grown on Mulberry bushes and hence the Silk is also known as Mulberry Silk. Although silk is produced in almost every district of Assam, Sualkuchi is the main silk weaving center of Assam. Almost all the weavers in Sualkuchi produce Paat Chador Mekhelas which are always in demand in the entire region. Even though Muga is known as the pride of Assam, Paat is also not less important for the Assamese tradition and heritage. Paat is more commonly used on every occasion in the region, mostly in Assamese weddings. These are more comfortable to use and wear and uphold the identity of the Assamese women. Total production of Paat Silk in Assam in the year 2015-16, 2016-17, 2017-18, is 40MT, 52MT, and 59MT consecutively [12].

4) *Eri Silk*

"Eri" the warm silk of Assam, bears Assamese heritage in its quality and style. It is called the Ahimsa and the poor man's silk. Assam is the heartland of Eri silk production and it spreads to South China, Malaysia, and other neighbouring countries. Eri is multivoltine silk spun from open-ended cocoons, unlike other varieties of silk. Eri silk is the product of the domesticated silkworm, *Philosamia ricini*. The name 'Eri' is derived from an Assamese word 'Era' which means the castor plant [13]. Eri was originally wild silk which is now domesticated and found only in the North-Eastern part of India. The earliest reference to Eri silk culture in India is documented in 1779 and this was originally called 'Assam Silk'. The larvae mainly eat leaves of the castor plant (*Ricinus Communis*), but also have several alternate plants like Kesseryu (*Heteropanax fragrans*), Cassava or Topioca (*Manihot exculata*), and a few other plants [14].

Unlike Muga or Paat, Eri can be cultivated with minimal efforts and it is very cheap to maintain. With every wash, the Eri becomes warmer and more comfortable to wear. It is, therefore, termed as "poor man's silk". Even after being very rich and classy, the Eri industry is still considered as a small scale industry in Assam. The farmers cultivate these worms during leisure time for some extra income and household usage. The cocoon of the Eri worm is very unique in its characteristics. While building the cocoon the worms leave a hole. When the worm converts into a moth, the moth can get out of the cocoon from this hole. To take out threads from the cocoon, it is kept open so that the moth can get out. In the case of other silks, it is not possible. Most of the Eri farmers prepare Eri seeds by themselves. They keep Eri seed cocoons in bamboo made moth cage Chokoripera. After the coupling of moths, they allow the female moths to lay eggs on a piece of cloth. Some farmers use thatch grass khorika to tie the female moths for laying eggs.

During the early state, the farmers rear Eri silkworms in Dola, a bamboo made tray. For cocooning of worms, the farmers use dry banana leaves as cocooning substratum known as 'Jali' [15]. Total production of Eri Silk in Assam in the year 2015-16, 2016-17, 2017-18 is 3143MT, 3619MT, and 4645MT consecutively. [12]

5) *Gamocha*

Besides these silk products, one more handloom item "Gamocha" of Assam represents Assamese tradition, life, and culture in the nation-front. Gamocha is a rectangular piece of cloth made both in cotton and silk as per the occasion. The standard size of a handwoven gamocha is 1.5 meters in length and 70 cm. in breadth, white in colour with a red border on three sides and red thread works on the fourth side. Gamocha is normally used as a bath towel. Gamocha is a symbol of friendship, love, regards, warmth, hospitality, which is intimately tied up with the social fabric of Assam. During Bihu, it is used as Bihuwan i.e. a token of respect and love towards each other. Gifting Bihuwan is an indigenous tradition of Assam. Again, it is also used for sacred purposes in the temples and Naamghars in the region.

The town of Sualkuchi is a storehouse of rich art and craftsmanship in the State of Assam. Mahatma Gandhi, in his visit to Assam in 1946, was highly astonished to see the quality of Assamese weavers. He rightfully remarked that the Assamese woman weaves fairy tales in clothes. Handloom is one of the major revenue and employment generating sector in the state of Assam. NABARD has also identified handloom as one of the nine potential sectors which can make sustainable rural development. In Assam, females wear attire known as "Chador-Mekhela" which is not widespread in other parts of the country. It has been found that weaving centers in Assam mostly produce "Chador-Mekhela" to fulfill local demand. In the absence of product diversification, the niche market is limited to Assam only. However, due to the growing demand weavers now have started making another woman apparel "Saree" in limited quantity. The handloom sector in Assam is doing its business mainly in five ways:

1. Selling products directly to the consumer (Example: Sale in the exhibition, trade fair, visitors of manufacturing units, etc.)
2. Selling products to private silk stores in Assam or outside Assam;
3. Selling products to private peddlers and vendors from Assam or outside Assam
4. Selling products through the sales centers of Co-operative societies; and
5. Selling products through the sales centers of Governmental agencies (Example: The Assam Apex Weavers and Artisan Co-operative Federation Limited (ARTFED), the Assam government Marketing Corporation (AGMC), Khadi and Gramoudyog Board, etc.) [16]. ARTFED is a marketing agency set up by the Government of Assam and registered with the Department of Cooperatives, Government of Assam. It has 55 sale counters, 3 Handloom production Units, 55 Showrooms/Emporiums (named as JAGARAN).

ARTFED has its designers who put their designs on the fabric collected from Sualkuchi and sell them in national and international markets [17]. ARTFED exports along with wearing apparel, some other handloom products such as Muga quilt, pillow cover, cushion cover, plain sheets, bed cover, curtain, etc. to USA, UK, and Japan, etc. There is a great demand for Muga fabric in Japan, which they use for making their traditional dress called "Kimono".

6) *Bell-Brass Metal Industry*

Assam has a very old tradition of metal manufacturing. The Bell-Brass metal industry of the state is another unique traditional knowledge possessed by the indigenous peoples of Assam. As the activities in the industry are carried on by artisans instead of any modern technologies, it can hardly be called an industry in the modern sense. Bell-brass metal production is known as the craft. The craft has a tradition since the 7th century A.D. Historically, the most renowned centers of this craft in Assam are Sarthebari in Barpeta, Hajo in Kamrup, Raha, and Hojai in Nagaon, Dhekiajuli in Sonitpur, and Titabor in Jorhat. The Bell-Brass metal industry is the second-largest handicraft of Assam.

Sarthebari is a small village in Barpeta District with a very ancient origin and history regarding bell-brass metal production. Situated less than 100 km from Guwahati, Sarthebari is home to the bell metal industry. Bell metal is an alloy of copper and tin and utensils made from it are used for domestic and religious purposes. Almost every household of the village is engaged in this cottage industry and the hammering of the metal at the furnace can be heard throughout the village. Sarthebari is mainly famous for bell metal productions since antiquity and the brass-metal manufacturers are mainly found in the Boniakuchi area near Sarthebari. It has around 91 brass metal production units and as many as 400 artisans are involved in the production. Yearly around 300 tonnes of brass metal are produced in Assam. With Boniakuchi, the name of Hajo is also worth mentioning where a good amount of brass utensils are produced for domestic use, for business purposes as well as for interior designing. These items are exported to nearby foreign countries like Bhutan, Tibet, Myanmar, and Nepal when there is a great demand for brass items.

People here mostly rely on their craftsmanship and the traditional art of bell-metal production as a means of their survival and livelihood. Their hands can create some unimaginable art with hard metals like bell and brass. The indigenous peoples of the area have been pursuing their craft since King Kumar Bhaskar Barman ruled Assam, and are very willing to continue it through the coming generations. Sarthebari is said to produce almost a hundred tons of products every year. The production of the bell metal is facilitated by the 300 production units operating in the village. The workshops are known as 'saal'. The bell metal industry has been handed down for centuries by a few clans of a caste known as Kanhar and requires much skill and training process for its execution. Some of the important bell metal products are the traditional plates, cups, tumblers, pitchers, bowls, Sarai, dwarf pitchers, pots, and musical instruments. The products are very popular within the state as well as in neighbouring countries like

Bhutan, Tibet, and Nepal. In the initial stage, raw materials are procured from Moradabad, Kolkata, and Delhi in the form of lead or tin and copper. These are usually brought in the proportion of 83 percent and 17 percent respectively. Moradabad is a popular place in Uttar Pradesh known for bell metal works [18].

Many times scraps are also used in huge proportions for manufacturing purposes. This ensures the recycling of old and damaged materials. During the manufacturing process, the copper and tin are melted in a coal furnace. The mixture is then weighed in various trays known as dices according to the requirement of measurements for a specific product. Then these are hammered to give them the required shape. The metal is then immediately dipped in water to cool it down to room temperature. It is done to make it strong and durable. The polishing is done by rubbing them vigorously by hand using a rug.

7) *Cane-Bamboo Handicrafts*

The bamboo and cane industry is the traditional industry of Assam. Bamboo has great importance to the lives of Assamese people and also to the economy of Assam since time immemorial. There is mention in history about the bamboo products of Assam during the kingdom of Bhaskara Varman in Assam (early part of 7th Century A.D). Bamboo is the most versatile product which has an end number of usages in Assam such as paper making, housing, furniture, household items, fishing equipment, transportation, etc. Cane-bamboo handicraft is a small scale and domestic industry in Assam which generates both full time and part-time livelihood in the State. Bamboo is an integral part of the social and cultural traditions of Assam. India is the second-largest producer of bamboo in the world next to China and also has a rich diversity in bamboos with almost 130 species spread over 18 genres. Of these, 78 species of bamboos are distributed in North-East India, and 51 species are found in Assam [19]. Bamboo has great market value also which is around 4000 crores on annual basis in case of raw stock of bamboo. With value addition, the price of bamboo has the potential to generate more revenue for the State. The Assamese community has vast knowledge and skills related to propagation, processing, and usages of Bamboo and Cane. Important species of bamboo of economic value are the Bhaluka bamboo (*Bambusa balcooa*), Jati bamboo (*Bambusa tulda*), Muli (*Malocanna Bambusoides*), Dalu (*Teinostachyum dalloa*), Khang (*Dendrocalmus longispatus*), kaligoda (*Oxytenanthera nigrociliata*) and Pecha (*Dendrocalamus Hamiltonii*) [20]. 14 different cane species grow in the forest of Assam. *Calamus flagellum*, *calamus floribunadus*, *calamus latifolius* are found widely in Assam.

The bamboo and cane crafts of Assam include preparing musical instruments that are extensively designed with intricate curving that needs dexterity in the craft. Among the musical instruments, flute, bamboo beater, dotara, etc., are commonly used in the Bihu festival of Assam. "Gogona" is another musical instrument that is famous in Assam. Apart from these, some households produce for the market like making independent products for localized markets, making storage and carrying baskets, fishing traps agricultural implements, seed trays, mats, and fencing material.

The bamboo and cane crafts of Assam have attained importance because in semi-urban areas groups of craftspeople and micro-entrepreneurs manufacture an array of products for adjacent and even distant markets. This flourishes the economic development of the state. Moreover, the product range builds on its functional origins and incorporates decorative and non-traditional products, ranging from largely low-value bamboo basketry to expensive cane furniture. Dolls and toys are an integral part of the bamboo and cane craft of Assam. Apart from human and animal figures, toy shotguns and musical instruments are crafted and designed beautifully [21].

8) *Agricultural and Medicinal Plants and Herbs*

The northeastern states of India, which are home to many indigenous tribes, have a forest cover of almost 47 percent and countless medicinal plants. Assam alone contributes nearly 3,000 species of plants, which are used in indigenous medicines [22]. But with the development of allopathy, increasing urbanization, and destruction of forests, many plant species are becoming extinct and unique medical traditions getting destroyed.

Assam is one of the 34 prominent and major biodiversity hotspots of the world and hence very rich in natural resources. These resources include the rare agricultural and medicinal herbs that are normally used for curing many dangerous diseases. The indigenous peoples of Assam, specially, who are living in remote villages, have a unique knowledge of the medicinal value and composition of these herbs. According to the World Health Organization (WHO), varieties of drugs were obtained from medicinal plants. Traditional medicines and compounds derived from medicinal plants are used by 80% of individuals from developed countries. Most of the plants that are used in making different types of medicines are a part of the traditional knowledge of the indigenous peoples and are used by them for their treatment.

The earliest written record of Rig-Veda, followed by Atharvaveda (2000-1000 BC) and Ayurveda (600-100 BC) recorded ethno medicinal plants from the Himalayas which are 6,500 years old. Today the villagers have much knowledge about the health and curing activities of diseases. The people of rural areas are still dependent on traditional medicines for health care and treatment of diseases. Traditional medicines have developed through the experiences of many generations and have been primarily dependent upon locally available plants. Medicinal plants are one of the major natural resources in pharmaceuticals and healthcare activities. Several high-value medicinal plant species have become extinct because of continuous exploitation and substantial loss of their habitats [24]. Assam is a repository of such rich medicinal plants which are mostly naturally grown and many of them are cultivated by the local and indigenous people of the region. Assam belongs to the Himalayan range of biodiversity which records as having more than 10,000 species of plants. Assam has many reserve forests which are extremely rich in different variety of medicinal herbs, such as Kaziranga National Park, Manas National Park, Nameri Wildlife Sanctuary, Chakrashila Wildlife Sanctuary, Dibru-Saikhowa Wildlife Sanctuary, Deepor Bill Bird Sanctuary, Laukhowa Wildlife Sanctuary,

Nambor Wildlife Sanctuary, and many other reserved areas. This state of India, with a forest area of 28,748 km comprises 3895 species of flowering plants, 293 species of orchids, 38 species of bamboos, and 10 species of canes, 355 species of ferns and fern allies, 23 species of gymnosperms have been recorded till date. The people in the state have a rich indigenous traditional knowledge system on the uses of components of biodiversity for their daily subsistence like food, fodder, shelter, and healthcare.

Since the early 1970s different groups in various institutes have been working on plant resources of the state including the exploration of new plant species and subsequent taxonomic studies that were conducted and published many reports at regional levels. Most of these wild vegetables, fruits, and medicinal plant uses are confined at the regional level only and less known to the world. There is an urgent need that the traditional knowledge of the indigenous people of this region is to be given importance. The rare plants and herbs are to be given protection by Geographical Indication so that the whole world can be aware of the rich heritage of the region. Among the thousands of unique agricultural and medicinal herbs found in the State, some are mentioned below which need GI protection to conserve their existence on earth:

- *Bor Manimuni*: *Centella asiatica*, commonly known as centella and gotu kola, is a small, herbaceous, annual plant. It is used as a medicinal herb in Ayurvedic medicine. It has the capacity of curing stomach trouble, indigestion, weak memory, low appetite, dysentery, diarrhea, etc.
- *Soru Manimuni*: This herb has the same features as *Centella asiatica* or *Bor Manimuni*. This is found anywhere in Assam.
- *Tengesi Tenga*: Indian Sorrel leaves or “TengesiTenga” in Assam is prescribed for insomniacs. The juice produced by crushing the leaves helps in facilitating sleep.
- *Pategoja*: It effectively dissolved kidney stones, perhaps because the leaves contain more than 10 percent isocitric acid. *Pategoja* can be found widely in the Brahmaputra valley. The juice of its leaves, which has a sour taste, is used widely for urinary problems.
- *Gol Nemu*: *Gol Nemu* (lime) or Assam limes are native to the Assam region of India. *Gol Nemu* limes are used to add sourness to spicy dishes in the Assam and Nagaland regions of Northeastern India. The limes are cut in half and juiced, the skin and seeds discarded. The Assam limes can be dried or pickled and preserved for years. It is a sour fruit that can cure dysentery, jaundice, and anemia when taken in actual proportion as directed.
- *Kazi Nemu*: *Kazinemu* is also known as Assam Lemon. This is the typical type of lemon found in Assam. This is normally used with food and as juice. Its refreshing and sour taste energizes humans. It has medicinal properties that can heal diarrhea, dysentery, eye problems, and pox.
- *Koldil (Banana flower)*: In the banana tree purple buds appear from the heart of the tip of the stem and develop into tubular, white flowers. Along with dietary fibers, proteins, and unsaturated fatty acids, banana flowers are

also rich in vitamin E and flavonoids. They are part of many cuisines in the world. They also possess immense medicinal value. Ethanol-based extracts of banana flowers inhibit the growth of pathogenic bacteria such as *Bacillus subtilis*, *Bacillus cereus*, and *Escherichia coli* in the laboratory and may help heal wounds and prevent infections. Banana flower is one of the best home remedies for excessive bleeding in women as it helps in increasing progesterone in the body. It can lower the insulin level in diabetes patients. Banana flower is excellent for the lactating mothers as it helps increase the breast milk supply.

- *Outenga*: *Dilleniaindica* commonly known as elephant apple or outenga is an evergreen tree grown in the moist forest of the sub-Himalayan region of Assam. In Assam, the unripe fruits are used to make curries because of its sour taste and ripe fruits are for making pickles. The studies show that the plant possesses various qualities like antimicrobial, antioxidant, analgesic, anti-inflammatory, dysentery, antidiabetic, etc. The fruits are used for the treatment of various diseases especially diabetes.
- *Amlokhi*: The roots of this tree are used as astringent. The fruits are used as a tonic, appetizer, and for hair blackening. *Amlokhi* is also used in herbal medicines. *Embelica officinalis* which is also known as Indian Gooseberry is one of the best Ayurveda rejuvenating herbs which is good for hair and skin. It is the best source of Vitamin C which makes it the best antioxidant herb also.
- *Silikha*: This is a long lived medicinal plant. Used as one of the indispensable elements in the herbal medicines. It improves digestion, cures heart disease, stomach problems, and urinary problems too.

9) *Pre-Registration Strategies:*

1. *Creating awareness among stakeholders*: To protect traditional knowledge under the Geographical Indication Act, 1999 it is imperative that all the stakeholders of the designated product become aware of different aspects of the Act and how the registration is going to benefit them. Therefore, the capacity building of the stakeholders seems to be an indispensable pre-requisite for developing a mechanism to protect the designated products.
2. *Formation of Consortium*: Since traditional knowledge antique historically originated products produced by a community, there is a need to bring the entire stakeholders under one-fold by constituting a consortium consisting of all stakeholders and their association. The consortium should be a legal entity that could be a group of producers, traders, NGOs, and other Government organizations representing the interest of producers.²⁴
3. *Study and Documentation*: Before applying for registration under the Geographical Indication Act, 1999 an exhaustive study and documentation should be undertaken. The study should mainly focus on the following issues:
 - a) Identifying the historical origin of the product with documented evidence.

- b) Every possible effort should be made to record the specifications of the designated product and the raw material used in the process of production.
- c) The uniqueness of the product due to the Geo-Climatic condition of the place of origin or due to the human skills associated with the process of production should be established with convincing proofs.
- d) The geographical spread of the production process should also be identified along with the authenticated maps so that no producer is left out.
- e) The inspection mechanism for maintaining the quality of the product in the post-registration period should also be identified.
- f) Socio-economic conditions of the stakeholders need to be elaborated and efforts should be made to define why GI registration is essential for the product and how it will be helpful for the stakeholders.

4. Conclusion

The constitution of India which is the guardian of the conscience of people also under Article 29(1) says that any section of the citizens residing in any part of India having a distinct language, script, or culture of its own has the right "to conserve the same". The Genetic and Biological resources could be considered as the "material resources of the community" which are capable of generating wealth for the community. Our constitution under Article 39(b) and (c) provides that States shall direct its policies towards securing that the ownership and control of the material resources of the community are so distributed as best to sub serve the common good and to ensure that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment. Article 51 (A) (f) of the constitution imposes a duty on every citizen of India to value and preserve the rich heritage of our composite culture. The traditional knowledge and cultural expressions nurtured and developed by the indigenous communities over generations are also an integral part of our composite culture. Traditional Knowledge does not fit into any other forms of existing IPR but to Geographical Indication because under the legal regime of geographical indication integrity of such knowledge and the traditional way of life of the community will not be compromised [25]. If the traditional knowledge of a community can be protected as a geographical indication, it will protect the interest of honest producers and traders, generally the economically backward traditional craftsman by preventing unfair competition, commercial abuses, and specifically unauthorized use. Moreover, it will help traditional producers to acquire a niche market for their products. Since there is no maturity period in the case of geographical indication unlike in the case of patent and copyright, traditional knowledge will remain with the community in perpetual. The geographical

indication will also help traditional knowledge holders economically, because studies have found that people are ready and willing to pay a premium price for origin guaranteed and quality assured products. Therefore, geographical indication is the best legal regime to protect traditional knowledge in the state of Assam.

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