

An Analysis of Indigenous Knowledge Collection at Botanical Survey of India, Shillong

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Abstract

Indigenous knowledge is the information gathered by indigenous communities within a particular area over many years. The study has been confined to the indigenous knowledge collection of the Botanical Survey of India, Shillong only. The main objective of BSI is to survey and document traditional knowledge (Ethno-botany) associated with plants. Most of the information is available in the form of books and project reports as well as research papers by BSI scientists. Apart from these sources one medicinal plant database is there with information of 1915 species, 1082 samples of Indian textile and 3000 samples of dye patterns in digitised form. They have collections on various fields like medicine, art & culture, local drinks, agriculture etc. Those resources are collected from different states of India across various tribes. Lack of awareness is the main problem faced by the organisation in collecting indigenous knowledge documents, but they are trying to create awareness by organising different programs.

Keywords: Indigenous Knowledge, BSI, Ethno-botany

1. Introduction

The information that an indigenous community has gathered over many generations within a particular geographic area is referred to as indigenous knowledge. IK encompasses a variety of topics, including language, culture, healthcare, agriculture, and climate detection.

Indigenous knowledge has immense potential in contributing to the well-being and sustainability of humanity in various ways:

Environmental Stewardship: Indigenous groups have important knowledge on biodiversity preservation, conservation techniques, and sustainable land management, all of which are important for combating climate change and protecting the ecosystem.

Adaptation and Resilience: Traditional knowledge systems frequently incorporate methods for adjusting to shifting environmental conditions, calamities, and other difficulties; these methods offer crucial insights for developing resilience for disasters.



Medicinal and Healing Practices: Indigenous knowledge of therapeutic plants and conventional healing techniques can provide complementary healthcare approaches and aid in the creation of new medicines and treatments.

Cultural Wisdom: Indigenous cultures provide important insights on living in balance with the environment and one another. They frequently highlight connection, harmony with nature, and community well-being.

Despite its great significance, indigenous knowledge is becoming less widely used due to different western influences. The youth don't want to use traditional medicines or conventional treatments as allopathic medicine has already captured the market. Lekhi (2019) has mentioned in her study that lack of documentation is one of the major reasons for loss of indigenous knowledge in Nepal. As well as some awareness and capacity development programmes should also organise among the local communities so that they can share their knowledge. As per the report of Zanon (2021), the extinction of indigenous languages leads to the loss of indigenous knowledge about medicinal plants as 75% of medicinal plant uses are known in only one language.

By valuing, preserving, and integrating indigenous knowledge systems into global efforts, we can enhance our collective ability to address the complex challenges facing humanity and create a more sustainable and harmonious world.

Botanical Survey of India, Eastern Regional Regional Centre, Shillong was established in the year 1956. The research and inventory of North-east India's flora are the focus of this center. It includes the jurisdiction of Assam, Meghalaya, Manipur, Mizoram, Nagaland and Tripura in a total area of 17, 1484 square KM. The protected area network comprises 3 biosphere reserves, 12 National Parks, 36 wildlife sanctuaries, 4 tiger reserves and 4174 wetlands. Eastern Regional Centre of BSI comprises one Herbarium, two Experimental Gardens, one National Orchidarium, one Tissue Culture Laboratory, one Museum and a central library. The herbarium of this centre is the largest herbarium in NE India. There are 147,113 numbers of general specimens and 779 type specimens. In the museum more than 100 specimens have been preserved and displayed. More than 800 rare, endemic and economically important plant species of this region have been conserved in the botanical gardens of the centre. The tissue culture laboratory of the centre has successfully propagated several endangered and endemic plants of the region. The library of the centre holds books and publications covering a variety of botanical scientific topics, including taxonomy, floristics, ethnobotany, phytogeography, conservation, and environmental sciences etc.

2. Literature Review

Osunade (1994) defined Indigenous Knowledge as institutionalized local information that has been built upon and passed on from one generation to the other by word of mouth and other socialization processes. Panghal et. al (2010) studied the indigenous knowledge about medicinal plants used by Saperas community and found that this community carries a vast knowledge of medicinal plants but as snake charming is banned in India as part of efforts to protect India's steadily depleting wildlife, this knowledge is also rapidly

disappearing in this community. Parajuli & Das (2013) found that the diverse indigenous knowledge existing in India is on the verge of extinction due to different reasons such as globalization, poverty as capability deprivation, and exclusion of those groups from education and other facilities, recent environmental threats like climate change. Radeny et. al. (2019) documented and synthesized existing indigenous knowledge on weather forecasting in East Africa using some case studies in Ethiopia, Tanzania and Uganda and found that farmers and pastoralists from those regions use a combination of meteorological, biological, and astrological indicators to forecast local weather conditions. They also suggested that a systematic documentation of IK, can improve accuracy, uptake, and use of weather forecasts. Hangshing & Laloo (2021) found that though efforts are being made by university libraries of North-east India, but due to various challenges like lack of funds, poor storage facilities, man power shortage etc. indigenous knowledge is not effectively managed in the libraries. Singh (2022) mentioned in his study that the population of North East India heavily depends on plants and indigenous systems of medicines which they have developed since ancient times. It is a treasure of resources which provides economic benefit to the contributing communities. Therefore, to protect traditional knowledge of North-east India, the only ways are sui generis systems of protection of industrial property from western world who want to exploit the same by way of patenting. Ndou, Materechera, Mwanza, Otang-Mbeng and Ijane (2023) stated ethnoveterinary (EVM) medicine has been used by local South African communities for centuries but due to influence of western medicine the knowledge of EVM is under threat. They found from the study that the youth are not interested in EVM which will result in loss of that knowledge. They recommended urgent surveys to document EVM in unexplored regions of North West Province.

3. Objective

The following objectives has been formulated for the study:

1. To find out the resources available at BSI, Shillong regarding indigenous knowledge.
2. To learn more about the methodology used for the collection of indigenous knowledge gathering.
3. To determine the obstacles the library faces in gathering Indigenous Knowledge resources.

4. Methodology

A questionnaire was prepared to conduct the survey which was designed to gather information about the collection and conservation of indigenous knowledge in the library of BSI, Eastern Regional Centre, Shillong. The information was given by Mr. Hemanta Kumar Das, Library & Information Assistant, who is in charge of the library. The data has been extracted, analysed and presented in tabular form for various parameters.

5. Data Analysis and Findings

One of the main characteristics of indigenous information is that it is passed from one generation to the next. Because of this oral nature of transmission some of the information may get lost. In botanical survey of

India, Shillong scientists have gathered information from various tribes and these are documented in both print and digital format. From the survey it is found that most of the information is available in the form of books and project reports as well as research papers by BSI scientists. Apart from these sources one medicinal plant database is there with information of 1915 species. They have also digitised 1082 samples of Indian textiles and in 15 volumes captioned 'Fabrics dyed with Indian Dyes' compiled by Mr. Thomas Wardle.

Table 1: Type wise number of documents

SI No	Document Type	Number of document
1	Print Document	Books/Project reports=163+, around 266 research papers published in various books and journals by BSI scientists.
2	Digital Document	1. One online database of medicinal plants 2. Textile Design: 1082 sample of Indian Textiles in silk, cotton, muslin and wool, being one of the 20 sets captioned 'Textiles manufactures and costumes of the People of India' compiled by JohnForbes Watson in 1866 and 1874 are being digitised to make this invaluable information on traditional Indian textile designs easily accessible and to check further deterioration of these valuable national assets. 3. Natural Dyes: 3000 samples of dye patterns, extracted from 64 plants, depicting Indian dying traditions, in 15 volumes captioned 'Fabrics dyed with Indian Dyes' compiled by Mr. Thomas Wardle an English silk dyer in 1857 is being digitised to make this invaluable information on Indian herbal dyes easily accessible, and to check further deterioration of these valuable national assets.
3	Manuscripts	nil
4	Audio/Visual Material	nil
5	Others (Medicinal Plant database)	One database is available online with 1915 species information with common name, uses and images are recorded in the medicinal plant database.

Among the twenty eight states and eight union territories of India the main concentration of tribal communities is in the central India and north eastern states. Among the north eastern states Arunachal Pradesh, Meghalaya, Mizoram, and Nagaland are predominantly tribal populated areas. BSI Shillong has been collecting indigenous knowledge related information from various parts of India. Among the states Meghalaya, Bihar, Assam and Maharashtra's contribution has been significant. Thirty numbers of documents in various fields of indigenous knowledge have been recorded by the scientists from these four states so far.

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Table 2: State Wise Collection (Books/Book Chapters etc.)

Sl No.	Name of the State	Number of documents
1	Meghalaya	5
2	Bihar	4
3	Assam	3
4	Maharashtra	3
5	Orissa	2
6	Kerala	2
7	Andhra Pradesh	2
8	Arunachal Pradesh	1
9	Tamil Nadu	1
10	Andaman & Nicobar Island	1
11	Mizoram	1
12	Manipur	1
13	Sikkim	1
14	Dadra & Nagar Haveli and Daman	1
15	Maharashtra	1

As per national commission for scheduled tribes India is home to more than 500 tribes which are distributed in 15 percent of the country's areas ranging from plains to forests, hills and barely accessible areas. Most of the indigenous knowledge that we are familiar with today has been there with these tribes for ages. Through proper communication, field visit and various awareness programs BSI scientists are successful in collecting various information from different tribes from Uttar Pradesh, Arunachal Pradesh, Assam, Meghalaya, Bihar, Tamil Nadu and Andaman & Nicobar Islands.

Table 3: Tribe and region wise collection

Sl. No	Tribe	Region
1	Agaria, Baiga, Bhuinya, Bhoxa, Gond, Kharwar, Kol, Korwa, Oraon, Panika, Parahia, Patharia, Tharu, Jaunsari etc.	Allahabad, Uttar Pradesh
2	Monpas, Adi, Khamti, Mizu, Chlikatta, Nocte, Sinpohs, Wanchos etc.	Arunachal Pradesh
3	Mishings (Miris), Karbis (Mikirs)	Assam
4	Khasi, Jaintia, Garo	Meghalaya
5	Munda, Asurs	Bihar
6	Todas, the Kotas and the Irulas	Tamil Nadu
7	Jarawa, Sentinelse, Onge, Andamanese Nicobarese, Shompen, Burman	Andaman & Nicobar Island

Indigenous knowledge can be considered as one of the most ancient and effective knowledge for human kind. Though these forms of knowledge are neglected initially after modernization of the society, its importance has been growing slowly but significantly. From the data provided by BSI it is found that indigenous knowledge has been used by the tribes in various fields such as medicine, agriculture, art & culture, traditional conservation practices etc. Among them, the highest number of documents is related to the field of medicine.

Table 4: Field wise collection of IK

SI No	Field	Number of documents
1	Medicine	60
2	Art & Culture	18
3	Traditional conservation practices	04
4	Agriculture	01
5	Ritual	01
6	Local drinks	03
7	Food habits	Nil
8	Veterinary	Nil
9	Season indicator	Nil
10	Other	05

Survey and documentation of traditional knowledge (Ethno-botany) associated with plants is one of the primary objectives of BSI. Different projects are allotted to the scientific staff for documentation of traditional and herbal medicinal practices by scientists and published in form of reports/books/databases and indexed and kept in libraries and names of the medicinal plants and usages are made available in the medicinal plant database of BSI.

All the submitted reports and published books are kept in the library for further use and also listed in the online Medicinal plant database. Project reports and Books are arranged in the library according to class number under Ethnobotany/Economic Botany. Till now only Books and Report are preserved and indexed according to practices available state wise. Indexing of such available documents is under process using e-granthalaya 4.0 library software maintained by NIC.

It is found that the main problem faced by the library during collection or maintenance of indigenous knowledge is lack of awareness among the people. Though the library is not organising any awareness program individually, BSI organises various programs and field visits regarding this.

The indigenous knowledge related resources available in the library are highly used by research scholars, scientists, faculty members as well as some students also.

6. Conclusion

The deep rooted knowledge possessed by the indigenous tribes are of immense importance. They have survived the harsh conditions of the places they lived in with the help of this knowledge. Through the study, we have found that BSI, Shillong have been collecting various important data through field visits, research projects etc. from various parts of the country. They have collections on various fields like medicine, art & culture, local drinks, agriculture etc. These documents have been systematically arranged and made available for other research scholars, scientists and students with the aim of distributing the information in various fields so that new inventions could be made and it became effective for the general public.

The study found that lack of awareness among the people is one of the main barriers in collecting data regarding indigenous knowledge. In addition to that, the new generations are mostly applying modern tactics of living and hence most of the indigenous practices are getting lost with the older generations. To prevent the loss we have to inform the younger generations about the various indigenous tactics used by their ancestors as well as we have to encourage the older people to share their knowledge. The government may take some initiatives in collaboration with BSI, Shillong as well as with some other educational institutions to organise awareness programs regarding indigenous knowledge.

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