



## Communication and dissemination of India's traditional knowledge

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India's traditional knowledge (TK) goes back to ancient times and spreads across several disciplines. World over, there have been many concerns about TK, including its neglect, misappropriation, erosion, etc. Lately, the lack of effective communication of India's vast TK among the masses has come into the spotlight. There have also been discourses around scientifically validated TK. This paper, based on a review of literature, looks at TK communication and its challenges. The paper also discusses the recent Indian initiative on communicating scientifically validated TK. It is concluded that for a sustainable future, nations should deeply study the TK and TK practices. Nations such as India that have a rich knowledge base should leverage on the TK. Effective communication of the TK is a vital step towards this end.

**Keywords:** Communication, Indigenous knowledge, Scientific validation, Traditional knowledge

TK is the knowledge that goes back in time, and that has been handed down over generations through oral or recorded means. According to WIPO, "traditional knowledge (TK) is knowledge, know-how, skills and practices that are developed, sustained and passed on from generation to generation within a community, often forming part of its cultural or spiritual identity<sup>1</sup>".

India has a rich TK base dating back to over 5000 years. TK can be found in a variety of contexts, including agricultural, scientific, technical, ecological, medicinal and biodiversity-related knowledge. Many of the Indian traditional medical and health systems such as Ayurveda, Siddha, Yoga, Unani, etc. are widely used to this day<sup>2</sup>. Despite the prevalence of western science, many TK systems including Ayurveda continue to thrive<sup>3</sup>.

However, it is also known that considerable TK across the world has been lost and is continuing to disappear for various reasons. The reasons include an onslaught of ongoing and future development projects<sup>4</sup>, lack of interest of the younger generation to learn the skills from older people<sup>5</sup>, market economy<sup>6</sup>, fragmentation of international law meant to protect TK<sup>7</sup>, death of the knowledge possessor<sup>8</sup>, modern education<sup>9</sup>, erosion of genetic diversity<sup>10</sup>, lack of protection of the TK<sup>11</sup>, extinction of the indigenous language<sup>12</sup> and so forth.

To stem the loss to global available TK, several countries have initiated measures to conserve and protect their TK. In the recent years, India also has taken several steps in rejuvenating and reaffirming the value of traditional knowledge systems<sup>13</sup>. It has been recognized that effective communication of the traditional knowledge and systems play a vital role in conserving, disseminating right information, and stemming the spread of false and fake news related to traditional knowledge. India has initiated focussed efforts to scientifically validate and communicate the validated traditional knowledge to the masses. The paper looks at the TK communication and dissemination efforts across the world, including the recent efforts in India.

### Challenges of traditional knowledge

As mentioned earlier, there are numerous challenges, especially with most of the TK being tacit and difficult to elicit information from it. Many times, indigenous people and even scientists are unaware of the existence of valuable TK. A survey carried out to understand TK on sustainable land management in Kilimanjaro Region indicated that indigenous people are unaware or have limited knowledge of traditional practices in the region<sup>14</sup>. This was mainly because some people migrate and/or get married into the region from other places with different traditional

practices. The authors found that the men mainly attributed their lack of awareness about the TK to migration, as they moved to other regions for various reasons such as business and/or employment<sup>14</sup>.

Gills *et al.*<sup>15</sup> explained that indigenous technical knowledge (ITK) has seldom been recognized and some indigenous knowledge is lost naturally as practices get customized or were left unused for long periods. The authors opined that the current rate of loss of indigenous knowledge can be ascribed to modernization and cultural homogenization. The authors were also of the view that ITK is affected owing to the slow growth of institutions supporting grassroots innovations.

Many indigenous communities face the accelerating loss of TK due to the rapid economic, political and cultural changes at the local and global levels. Corbett and Keller (2006) observed that communication constraint between indigenous communities and decision makers is one of the reasons why indigenous communities are not involved in decision making on issues related to sustainable development and conservation of biodiversity<sup>15</sup>. The authors explained a participatory action research project in Indonesia on supporting indigenous communities in expressing, documenting, visualising and communicating their traditional and contemporary land-related knowledge using geographic information and communications technologies. They created a community information system to document and communicate TK embedded in the landscape<sup>16</sup>.

It would be beneficial to bring holders of TK and scientific knowledge together. Efforts should be taken to improve the communication between both stakeholders. Huntington *et al.*,<sup>17</sup> made successful attempts by organising workshops to improve communication between these two.

Another interesting point was highlighted by Bode (2006)<sup>18</sup> that the “commoditization of ayurvedic and unani formulas threatens to rob the poorer sections of Indian society of access to Indian medicine because they cannot afford the relatively expensive ayurvedic and unani brands. The proliferation of over-the-counter brands also erodes the position of the traditional physician whose expertise in diagnoses and tailor-made treatments is not used.”

Other than the concerns about the decline and disappearance of TK, there is also global disquiet about the misappropriation of TK. The threat to TK

has been globally recognized and there are many initiatives to protect and preserve TK<sup>19,20</sup>.

### **Protection of traditional knowledge**

The protection of TK is imperative and should focus on striking a balance between the preservation as well as the sustainable development of ancient knowledge. In 1995, Agrawal made a statement that "if indigenous knowledges are disappearing, it is primarily because pressures of modernisation and cultural homogenisation, under the auspices of the modern nation-state and the international trade system, threaten the lifestyles, practices and cultures of nomadic populations, small agricultural producers, and indigenous peoples. Perhaps these groups are fated to disappear. But their knowledge certainly cannot be saved in an archive if they disappear<sup>21</sup>".

In a paper intended to raise awareness of issues related to protecting aboriginal TK and intellectual property from misappropriation and misuse, Brascoupé and Endemann (1999)<sup>22</sup> stated that "few legal mechanisms exist to help indigenous communities protect and preserve traditional knowledge. It is urgent that such mechanisms be developed, because of the increasing pace at which control of traditional knowledge is being lost due to misappropriation and pressures from the non-indigenous world."

By the turn of the century, the patent system had come under considerable criticism for its failure to prevent the misappropriation of TK. By then, it was clear there is a large body of documented TK and texts available all over the world. However, the limitation was how the patent procedures can include more comprehensive searches for prior art and thereby prevent the misappropriation of TK<sup>23</sup>.

The erosion and misappropriation of TK though different, affect many ancient and indigenous knowledge systems. There are several ways in which the TK systems can be protected. Systematic documentation, legal frameworks and effective communication are some of the means to protect the TK.

In ancient times, the oral form of communication was more prevalent. In India, a few cultures, to this day, practice only oral communication and dissemination of information about certain traditional practices. Such tacit knowledge is always in the grave danger of disappearing forever. To ensure the availability of TK for succeeding generations and to help perpetuate the TK, it is required to document the

TK. Documentation makes communication easier. Ranganathan (1962) also emphasised that documentation is a vital link in communication<sup>24</sup>.

### Documentation of traditional knowledge

There are several initiatives across the world to document the TK<sup>19,25</sup>. Bussmann (2020)<sup>26</sup> stated that “there is a great urgency to address the vital importance of traditional knowledge about plants, their utility, management, and conservation. This unique, often ancient, and detailed knowledge is typically held and maintained by local and indigenous communities.” The importance of TK in various fields such as environmental affairs<sup>27</sup>, food culture<sup>28</sup>, pharmaceutical and medical research<sup>29,30</sup>, biodiversity<sup>31</sup> along with others have been reported.

As in other parts of the world, several steps are undertaken in India too to protect the country's TK from misappropriation. India's Traditional Knowledge Digital Library (TKDL) is an initiative to prevent misappropriation. Based on TKDL, several patent applications have been either set aside, withdrawn/cancelled, or declared dead. The innovative TKDL helps India in protecting millions of traditional medical formulations<sup>32</sup>. Similar TK preservation and documentation efforts in other countries, namely, Korea, China, Venezuela, South Africa and Australia, have been reported<sup>50</sup>.

There is also a growing realization that considerable TK and practices can be used jointly with other knowledge systems with or without modifications. Raghunath Mashelkar, known for leading India's battle against misappropriation of India's TK and the resultant setting up of the TKDL, is reported to have felt that India could benefit if it can build a golden triangle between traditional medicine, modern medicine and modern science<sup>33</sup>. In recent years, Indian researchers have successfully melded Ayurveda of the ancient system of medicine and well-being into the modern area of genomics to create a new discipline that has come to be known as Ayurgenomics<sup>34</sup>.

Soares (2021)<sup>35</sup> highlighted the importance of integrating scientific knowledge with TK to develop sustainable agroecosystems. The importance of TK associated with plant genetic resources in India has been extensively documented<sup>36</sup>. Barbhuiya *et al.*, (2022)<sup>37</sup> proposed using the Internet of Things (IoT) for better water management in cities and integrating TK with advanced technologies.

Despite the global understanding of the importance of TK, and many efforts to preserve, conserve and integrate TK in India, there is “ignorance about, and a general lack of rational appreciation of India's traditional knowledge systems (TKS), which could otherwise be a good source of new ideas, and thus innovation”<sup>38</sup>.

Calafati stated that “the difference between knowledge in use and knowledge not in use does not increase as a consequence of technological progress. This is because unused knowledge may disappear from the cognitive systems of individuals (and, therefore, from the region) after a period of time<sup>39</sup>.” For the TK to be used, it should be widely known to people. There is a need to communicate and disseminate scientifically validated TK and practices so that people are not only aware but also are informed and inspired to use the relevant TK.

### Validation of traditional knowledge

Jayasree and Sai Baba (2019)<sup>40</sup> observed that “convincing others about our ancient Indian knowledge systems and reaching out to society are the biggest challenges.” Many times, there is a lack of trust and scepticism about TK owing to its ancientness and consequent lack of validation by modern scientific methods. Moreover, there have been contrasting views on the validation of the TK.

In 2011, Gratani *et al.*,<sup>41</sup> examined if validation of indigenous ecological knowledge is a disrespectful process. Working alongside indigenous co-researchers, the authors developed a framework for the potential future design of collaborative validation processes. They aimed to facilitate the integration of indigenous ecological knowledge into mainstream natural resource management and the acceptance of scientific knowledge within indigenous communities in Australia. Based on their results, the authors concluded that validation is not an intrinsically disrespectful process.

However, some researchers disagree with the need for the validation of TK. According to Shiva (2000)<sup>42</sup>, the need for the validity of one knowledge system by another raises issues over the equity of such an approach. It perpetuates the superiority of scientific knowledge if scientific evidence is required to support or validate indigenous ecological knowledge. Brook and McLachlan (2000)<sup>43</sup> also warned against the unilateral validation of indigenous ecological knowledge by scientific knowledge as it might be

disempowering and disrespectful to local communities.

The need and the process of validating TK have several aspects to it. There is TK that is well documented. There are also TK and practices that have no documentation but have become part of a society's culture and tradition. Finally, there are considerable TK and practices that are not well documented and that people are unaware of. Each of these requires different approaches to validation. Some may not need any validation and some others may need rigorous validation.

Even if it is impossible, impractical and unnecessary to scientifically validate all available TK, lots of scientifically validated TK and practices have been published in research journals<sup>44</sup>. Once it is confirmed that TK is founded on evidence-based research or scientific principles, it needs to be communicated in a manner that it percolates into society for the betterment and the benefit of humanity.

Creating awareness and sharing evidence-based traditional practices/knowledge among the public is of paramount importance to instil a sense of pride and confidence in the inherited knowledge. Recognising the importance of this, the Prime Minister of India, Mr Narendra Modi exhorted that information related to scientific validation of the traditional knowledge/practices needs to be communicated effectively to the public. The Council of Scientific and Industrial Research (CSIR) was directed to spearhead the efforts to collaborate with the relevant partners from across the country and implement the national initiative on 'Communicating India's scientifically validated traditional knowledge'. CSIR-National Institute of Science Communication and Policy Research (CSIR-NIScPR) has been assigned as the nodal organisation to implement this national initiative.

CSIR-NIScPR recently launched SVASTIK-Scientifically Validated Societal Traditional Knowledge, an initiative that communicates validated TK in simplified form through digital platforms in different Indian languages. SVASTIK's objective is also to conserve the practice of the right tradition, inculcate a scientific temper of verifying tradition in a scientific manner and instil confidence in citizens regarding the scientific value of our traditional knowledge/practices<sup>45</sup>.

### **Language and traditional knowledge**

Language can be a barrier to communication and dissemination efforts. It is well known that one of the

reasons for the misappropriation of TK is owing to the language barriers. India's traditional medicinal knowledge exists in languages such as Sanskrit, Hindi, Arabic, Urdu, Tamil, etc., that too in ancient dialects that are no more or are very limited in practice today. Thus, the Indian TK literature is neither accessible nor understood by patent examiners at international patent offices.

Initiatives like the TKDL integrate diverse disciplines and languages such as Ayurveda, Unani, Siddha, Yoga, Sanskrit, Arabic, Urdu, Persian, Tamil, English, Japanese, Spanish, French, German, modern science & modern medicine. The TKDL has overcome the language and format barrier by systematically and scientifically converting and structuring the available contents of the ancient texts on Indian Systems of Medicines, *i.e.* Ayurveda, Siddha, Unani and Sowa Rigpa as well as Yoga, into five international languages, namely, English, Japanese, French, German and Spanish, with the help of information technology tools and an innovative classification system<sup>46</sup>.

It is estimated that there are more than 5 million manuscripts in India that contain an ancient knowledge base. The National Manuscript Mission has identified about 27 lakh manuscripts<sup>47</sup>. It is reported that in the states of Kerala and Tamil Nadu alone, there are 1.5 lakh manuscripts. Of these, 12,250 manuscripts are related to science. However, the scholars and historians of India have all along been accessing only 7% of texts<sup>48</sup>.

There are still a large number of manuscripts to be uncovered. The manuscripts contain a wealth of information, and it is a tedious task to translate them and communicate them to the masses.

For the TK to reach far and wide, it has to be communicated in hundreds of global languages. The Eighth Schedule of the Indian Constitution lists the official 22 languages of India and steps need to be taken to address all these languages systematically.

Oral TK has been even harder to identify and document accurately. Some TKs are highly indigenous to certain communities or even a family. These language-related attributes of TK make communication and dissemination of TK challenging.

### **TK education and communication**

As of now, communication of TK has largely been carried out either by the practitioners of TK/systems or by different kinds of institutions engaged in TK research and studies. By virtue of their focus and

mandates on TK activities, these individuals and institutions may be adequately situated to effectively communicate TK. For example, the Ministry of Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homoeopathy (AYUSH), Government of India is purposed with developing education, research and propagation of indigenous alternative medicine systems in India. Several institutions under the AYUSH, among other mandates, also carry out the communication of TK specific to their domains. However, there has been no overarching effort to communicate TK in India, especially the TK that has been scientifically validated.

Sai Baba (2021)<sup>49</sup> noted that "there is a need to bring awareness about ancient Indian knowledge systems and communicating the essence and reaching out to society and enable its integration into the education system". Snively and Corsiglia (2000)<sup>50</sup> stated that "in many educational settings where western modern science is taught, it is taught at the expense of indigenous science, which may precipitate charges of epistemological hegemony and cultural imperialism". The authors called for the need to reform the science curriculum. "Science text books need to provide examples of the numerous contributions of indigenous knowledge and traditional ecological knowledge to prove the fact that traditional knowledge and wisdom enable indigenous people to live in environments over periods of time". The authors also pointed out that the school curriculum should illustrate how a synthesis of both western modern science and indigenous knowledge can work together to solve problems.

India's National Education Policy (NEP) 2020 envisages incorporating knowledge from ancient and modern India accurately and scientifically in the school curriculum wherever relevant. In particular, Indian Knowledge Systems, including tribal knowledge and indigenous and traditional ways of learning, will be covered and included in mathematics, astronomy, philosophy, yoga, architecture, medicine, agriculture, engineering, and others. Specific courses in tribal ethnomedicinal practices, forest management, traditional (organic) crop cultivation, natural farming, etc. will also be made available<sup>51</sup>.

Imbedding TK into education, especially communication in courses, is important. India has very few specialised communication courses. The component of science in the communication and

journalism courses is negligible as the focus of these courses is generally on mass communication and journalism aspects.

Elsewhere in the world, there have been efforts in this direction. For example, the University of Hawaii has introduced a highly specialised communication course that also has a TK component<sup>52</sup>. The ocean science communication course infuses TK into its curriculum, and it was found that "the act to structured, open discourse and sharing was extremely valuable in integrating TK into communication and ocean science and in helping to make students more effective educators." It might be useful to explore the possibility of introducing courses on TK communication in India.

To effectively and sustainably disseminate and harness the TK base, it is required to infuse the TK into the education system. In recent years, there have been efforts in this direction at various levels. The stress given on the Indian knowledge system in the NEP 2020, the creation of initiatives such as the SVASTIK by the CSIR, plans to set up Centres of Indian Knowledge System across India by AICTE<sup>53</sup> are some of the initiatives that have communication and dissemination of TK at its core, among other things.

In recent years, mass communication through online platforms has become common. Online platforms are expanding rapidly and have numerous advantages, though there are serious concerns about the growing disinformation, misinformation and fake news on these platforms. Depending exclusively on social media for communication has disadvantages. There has to be inclusivity in communication where the inclusivity has to encompass all kinds of media and segments of the intended audience.

Numerous communication methods and means have been well-researched and documented and a few specialized streams of communication have also evolved. Some of these include science communication, disaster communication, health communication, environment communication, agriculture communication and many more. There are several commonalities in the communication programmes, methods and means in each of these areas. However, a communication method applied in health communication may or not apply to agriculture communication.

The audience of TK cuts across different segments of the population. Based on the TK that is to be

communicated, and the intended purpose of the communication, the method of communication has to be chosen. Some questions to be asked when designing a TK communication plan are: Is the purpose to inform or inspire, or both? Is it to get people to adopt and use the TK? Is it to impart knowledge?

The communication plan for a school student would be very different from the one for the elderly or senior citizens. Each communication campaign should be chosen carefully so that it is purposeful and beneficial to the targeted groups. The learnings from the other sectors of communication can be applied to TK communication suitably and new methods evolved to communicate TK. In India, Yoga can be considered as having benefitted from effective communication and promotion.

Yoga, an ancient knowledge system that focusses on the health and well-being of all. A multi-pronged approach has been adopted to propagate mass awareness. Beginning from the highest office of the country to local yoga groups, from the declaration of an International Yoga Day to dedicated mass media programmes for all citizens of the country, it has been possible to make people aware of yoga, educate and inspire many to adopt yoga practices.

### **TK communication: Institutionalized vs Networked approaches**

TK in India spans several domains from medicine to metallurgy, biodiversity to buildings, gastronomy to astronomy, agriculture to arithmetic and geometry to geography. The diverse nature of TK makes it difficult for an institutionalized approach to communicating TK belonging to all the areas. A successful communication campaign is likely to be more effective through a networked approach. Such a networked approach should involve TK institutions, experts belonging to the respective TK areas, and also the indigenous people who possess or are users of the TK.

For sustainable TK communication, it is required to form a TK management network that connects multiple stakeholders including TK researchers, TK institutions, indigenous people and communication specialists. One example of a successful network that among other things also includes communication is the Honey Bee Network. The Honey Bee Network has helped provide a sort of loose platform to converge creative, but uncoordinated individuals across not

only Indian states having varying cultural, linguistic and social ethos, but also in 75 other countries around the world. What the Network is trying to do is transform the way the knowledge resources, innovations and sustainable practices are used<sup>54</sup>.

In addition to the many existing institutions imparting education, conducting research and devising policies related to traditional knowledge, it might be worthwhile setting up an Academy of Traditional Knowledge on the lines of existing science and sahitya academies. Such an academy could be autonomous and promote the TK and provide the much needed leadership role towards consolidating and documenting TK. It can also drive documentation, communication and dissemination in different regional languages too. In the current scheme of things, although there is a recognition of the value of TK, more concrete institutional impetus along with right capacity (human resources) and appropriate funding can enable this.

### **Conclusions**

Modern knowledge has relegated TK to the background. This has happened not because all TK is irrelevant but because of several historical reasons, including the growth and the spread of modern science, politico-social changes, patronage of newer systems, etc. There is a growing realisation about the benefits of TK and the need to preserve traditional practices. In addition to the conservation and preservation of TK and practices, it is required to effectively communicate and disseminate relevant and scientifically validated TK.

However, there are some challenges in the communication and dissemination of TK as brought out in this paper. These challenges have to be borne in mind while devising TK communication plans. For the common people, the practices may be more important than the knowledge itself. In its communication, the scholarly TK needs to be unwound into beneficially doable practices as well.

Like science communication, health communication, environment communication, there is potential for the emergence of TK communication as a specialized area. In the recent past, academic programmes on Indian knowledge systems have been introduced in many institutions including the Indian Institutes of Technology (IITs). These initiatives will go a long way in capacity building in this niche area.

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