



## Indian knowledge system and Tribes

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### **Abstract:**

*The Indian Knowledge System (IKS) encompasses a rich tradition of indigenous understanding that has evolved through sustained human engagement with nature, society, and culture over centuries. Tribal communities occupy a central position within this system, as they have preserved and practiced diverse forms of knowledge rooted in local environments and collective experiences. Their contributions extend across areas such as healthcare, agriculture, ecological management, social organization, and cultural expression.*

*This paper examines the role of tribal communities in sustaining the Indian Knowledge System and evaluates the contemporary relevance of their traditional wisdom. It highlights the modes through which tribal knowledge is transmitted, primarily through oral narratives, rituals, customs, and everyday practices rather than formal written documentation. The study also explores how tribal knowledge supports sustainable resource use, biodiversity conservation, climate adaptability, and community-based governance.*

*In addition, the paper discusses the challenges confronting tribal knowledge systems, including the effects of modernization, displacement, language loss, and insufficient institutional support. Relevant policy frameworks, such as the National Education Policy 2020 and the Forest Rights Act, 2006, are reviewed to assess efforts toward preservation and integration. The study emphasizes the importance of ethical documentation, legal protection, and academic recognition of tribal knowledge. It concludes that meaningful integration of tribal wisdom with modern scientific approaches can contribute to sustainable and inclusive development in India.*

**Keywords:** *Indigenous Wisdom, Traditional Ecological Knowledge, Adivasi, Oral Traditions, Sustainability, Ethno botany, Sacred Groves, Holistic Approaches, Dharma, Moksha, Vedic Sciences, Ayurveda, Yoga, and Cultural Continuity.*

### **Introduction:**

The Indian Knowledge System (IKS) represents a vast and diverse body of indigenous knowledge that has evolved in India through centuries of observation, experience, and interaction with nature. It includes traditional wisdom related to medicine, agriculture, ecology, philosophy, governance, and cultural practices. Tribal communities, as the earliest inhabitants of the Indian subcontinent, have played a crucial role in the development and preservation of this knowledge system. Their knowledge is deeply

rooted in local ecosystems and is transmitted primarily through oral traditions, customs, and community practices.

Tribal knowledge forms an integral part of the Indian Knowledge System, emphasizing sustainability, collective well-being, and harmony between humans and nature. Despite its significance, tribal knowledge has often remained marginalized in formal education and policy frameworks. Rapid modernization, displacement, and loss of indigenous languages have further threatened the survival of these knowledge

systems. In recent years, there has been growing recognition of the importance of integrating tribal knowledge into mainstream academic and developmental discourse. This study aims to explore the relationship between the Indian Knowledge System and tribal communities, highlighting their contributions, challenges, and contemporary relevance.

### Objectives:

- To study the concept and significance of the Indian Knowledge System.
- To examine the role of tribal communities in preserving indigenous knowledge.
- To identify various forms of tribal knowledge related to medicine, agriculture, ecology, and culture.
- To analyze the contribution of tribal knowledge to sustainable development.
- To understand the challenges faced in the preservation of tribal knowledge systems.
- To study government initiatives and policies for the protection of tribal knowledge.
- To highlight the importance of integrating tribal knowledge into modern education and research.

### Concepts of Indian Knowledge System (IKS):

Knowledge is passed down totally from one generation to the coming through the Indian Knowledge System (IKS). The Indian Knowledge System is holistic and interdisciplinary in nature. It emphasizes harmony between humans, nature, and society. Crucial characteristics of IKS include:

1. **Holistic View:** Integrates physical, mental, spiritual, and social aspects, seeing the universe and life as interconnected.

2. **Experiential & Practical: Knowledge gained through direct observation, experimentation, and hands-on application.**
3. **Value-oriented:** Central focus on ethics (Dharma), morality, compassion, and truth in all aspects of life.
4. **Interdisciplinary:** Disciplines like philosophy, science, and medicine are interwoven, not isolated.
5. **Oral Tradition & Conciseness:** Knowledge often stored in compact, memorable verses (Shlokas, Sutras) for easy transmission.
6. **Sustainable & Eco-Friendly:** Promotes harmony with nature and sustainable resource management.

### Knowledge transmission through oral traditions:

- **Guru-Shishya Parampara:** The foundational relationship where a Guru imparts wisdom, values, and practical skills to a Shishya (student) through direct interaction, mentorship, and experiential learning.
- **Sutras:** concise, mnemonic verses that condense vast knowledge across subjects (philosophy, math, medicine) for easy memorization and oral transmission.
- **Storytelling (puranas, itihasa,):** Narrative forms (epics, fables) served as powerful pedagogical tools, transmitting **ethics, statecraft, cultural values, and life lessons across generations.**

### Why Oral Tradition Was Crucial:

- **Accessibility:** Allowed knowledge to spread beyond literate elites.
- **Deep Assimilation:** Fostered deep understanding and internalization through memorization and recitation.
- **Adaptability:** Enabled knowledge to remain living and relevant, evolving with societal needs.

- Community-centric learning and ethics: Folk songs, dances, myths, and legends ,Rituals connected to agriculture, birth, and death ,Art forms, symbols, and indigenous languages. These cultural expressions function as educational tools and identity markers.
- Community Focus: Knowledge aims for collective welfare, sustainability, and resilience, using local resources for community needs.
- Inner Transformation: Learning involves self-awareness, emotional balance (through Yoga/meditation), and freedom from ignorance, leading to wiser individuals within the community.

IKS includes areas such as Ayurveda, astronomy, architecture, agriculture, mathematics, linguistics, and environmental management.

### Domains of Tribal Knowledge within IKS:

#### 1. Traditional Medicine and Healthcare:

Medicinal Plant Identification & Use: Gond, Santhal, and Bhil tribes use a wide variety of local plants for traditional medicine, with common examples including *Andrographis paniculata* (Chirayta) for fever, *Azadirachta indica* (Neem) for skin issues, *Ocimum sanctum* (Tulsi) for coughs, and *Adhatoda vasica* (Adulsa) for asthma. These communities identify plants like *Madhuca indica* for wounds and *Lawsonia inermis* for piles, often using leaves, roots, or fruits, preparing remedies orally or topically to treat ailments from fever and digestive issues to fractures and skin diseases, relying on traditional healers (Vaidu/Bhumka) for guidance.

Common Applications: Tribal traditional medicine commonly uses plants for illnesses like fever, pain, skin infections, and digestive issues, often preparing them as pastes, decoctions, or powders from leaves, roots, and bark.

#### 2. Cultural & Artistic Traditions:

Cultural & Artistic Traditions include Warli painting (geometric scenes of daily life), Gond art (intricate patterns depicting mythology), Madhubani (vibrant storytelling from Bihar), and Toda embroidery (geometric needlework from Tamil Nadu).

#### Painting and visual arts:

1. **Warli (Maharashtra):** Simple, geometric shapes (circles, triangles, squares) on hut walls depicting scenes of harvest, dance, and rituals.
2. **Gond (Madhya Pradesh):** Intricate, detailed patterns and lines illustrating mythological stories and nature.
3. **Madhubani (Bihar):** Bold, geometric patterns often narrating epics, nature, and gods, traditionally created by women.
4. **Bhil (Rajasthan/MP):** Multicolored dots and figures, often on walls, featuring animals and rituals.
5. **Saura (Odisha):** Mural paintings with bold lines and natural pigments to represent religious beliefs

#### Dance and Music:

Integral to festivals, weddings, and ceremonies (e.g., Ghoomar from the Bhil tribe).

#### Use of Herbs, Roots, Bark, and Minerals:

**Herbs and Plant Parts:** Tribal knowledge uses various plant parts—leaves, bark, roots, fruits, and seeds—for a wide range of medicinal purposes like treating fevers, skin ailments, and digestive issues, often by preparing decoctions, pastes, or fresh juices. Examples include *Andrographis paniculata* (leaves for jaundice/pain), *Azadirachta indica* (twigs for teeth, leaves for liver), and *Ocimum sanctum* (tulsi leaf juice for fever). This traditional wisdom, passed down through generations, uses

specific parts of plants for specific ailments, but is at risk of being lost.

- **Leaves:** Juice of dhonjan for cuts; extract of *Andrographis paniculata* for jaundice/body pain; poultice of mothya for itching; fresh juice of *Ocimum sanctum* (tulsi) for fever.
- **Bark:** Decoction of Chingthrao angouba for leprosy/asthma.

#### Treatment of common ailments, snake bites, fractures, and fevers:

- **First Aid Practices:** Tribal communities often use traditional, but sometimes harmful, first aid for snake bites, including tourniquets, incisions, and herbal remedies, while delaying hospital care due to beliefs in traditional healers.
- **Manual Techniques:** Tribal bone setting involves manual bone realignment, massage with herbal oils, and splinting with natural materials like bamboo or wood, using traditional knowledge passed down through generations. Techniques include palpation to diagnose, manual traction to align bones, and applying herbal pastes for anti-inflammatory and healing effects, followed by wrapping with cloth and firm splints to immobilize the limb. The practice is culturally significant, affordable, and common in areas with limited modern medical access, though outcomes vary.

#### Agricultural Knowledge:

##### A) Soil Management Techniques:

Mixed Cropping & Integrated Farming Growing multiple crops together and integrating beast (flesh, cattle) to produce a tone - sustaining system where beast ordure fertilizes fields, and crops give food.

i) **Bunds:** Constructing earthen, stone, or vegetative barriers (using grasses like

sambuta) around fields to control runoff and soil loss.

##### B) Water Management Techniques:

- **Jhola Kundi/Taanka:** Small, circular, hand-dug pits or underground cisterns to collect rainwater.
- **Kuhls:** Wooden or bamboo channels that divert water from streams to fields using gravity.

##### C) Irrigation:

- **Bamboo Drip Irrigation:** A system in Northeast India that uses split bamboo pipes to channel water from a source to crops, ideal for hilly terrain.
- **Water Sharing:** Community-based social structures to ensure equitable water distribution.

#### Social and Governance Systems:

Traditional institutions: Traditional tribal governance includes village councils (like Rai Sabha, Kula Panchayat) for dispute resolution, leadership structures (like Syiemship, Nokmaship) with chiefs and deputies, and community institutions like the Morung or bachelor dormitories for youth development and social cohesion, all functioning through consensus-based decision-making and custom. These systems vary by region but focus on self-governance, resource management, and upholding cultural traditions.

#### Customary Laws & Consensus:

- **Customary Laws:** Evolved over generations, these are unwritten codes of conduct and social norms based on a community's history, ethics, and values.
- **Consensus in Governance:** Decisions are reached through discussion and agreement, often with the guidance of elders, to maintain social harmony.

**Interplay with Modern Systems:**

- **Challenges:** Integrating customary law with national laws can cause friction, especially regarding gender equality or when state intervention occurs.
- **Modern Adaptation:** Tribal courts increasingly use customary law as an interpretive tool, sometimes requiring testimony from elders to understand traditional customs.

**Tribal self-governance systems include:**

Village councils and elders' assemblies  
 Customary laws for conflict resolution  
 Collective decision making and social responsibility.

**Challenges to Tribal Knowledge Systems:**

Tribal knowledge systems are increasingly under threat due to modernization, economic development, and displacement from traditional lands. The separation of communities from their natural environment weakens the transmission of ecological knowledge related to forests, agriculture, and medicinal plants. Language loss further accelerates this decline, as many indigenous concepts cannot be easily translated into dominant languages.

Inadequate institutional support, lack of formal documentation, and insufficient legal protection of intellectual property rights have contributed to the erosion of tribal knowledge. Younger generations often face a disconnect from traditional practices due to migration, formal education systems, and changing aspirations. As a result, valuable cultural knowledge that has evolved over generations risks being permanently lost.

**Government Initiatives and Policy Support:**

Tribal knowledge systems in India, encompassing invaluable ecological, agricultural, and medicinal wisdom, are facing severe threats

due to rapid modernization, globalization, and, in some cases, misguided development policies. While these systems are crucial for sustainable living and biodiversity conservation, they are being lost through cultural erosion, legal complexities, and the displacement of communities.

**Key Challenges to Tribal Knowledge Systems:**

- **Displacement and Land Loss:** Displacement and land loss severely damage tribal knowledge systems by severing the link between land, culture, and identity, leading to the erosion of traditional languages, customs, and practices like herbal medicine and sustainable agriculture.
- **Loss of ecological knowledge:** Traditional ecological knowledge (TEK) about local flora, fauna, and ecosystems becomes obsolete or inaccessible when communities are moved to unfamiliar environments, disrupting practices like hunting, gathering, and sustainable farming.
- **Erosion of language:** Indigenous languages are often tied to specific lands and place names; displacement weakens language transmission as speakers are separated from their cultural context.
  - i) Lack of Institutional Support
  - ii) Intergenerational Disconnect
  - iii) Inadequate Intellectual Property Rights (IPR):
  - iv) Loss of Cultural Identity
- **Lack of Formal Documentation:** Challenges to oral tradition include modernization and globalization (migration, urbanization, mass media replacing traditional forms), lack of support (funding, institutional backing), erosion of cultural identity, and the risk of misinterpretation or loss as knowledge moves from elders to younger generations, especially

with changing lifestyles and inadequate intergenerational transmission.

### **Role of IKS and Tribal Knowledge in Sustainable Development:**

#### **A) Environmental Conservation:**

1. **Resource Management:** Wise use of water, forests, air, and energy.
2. **Biodiversity Protection:** Safeguarding genetic, species, and ecosystem variety through national parks, sanctuaries, and species-specific projects.
3. **Pollution Control:** Minimizing waste and harmful emissions through laws and practices like the Environmental Protection Act.
4. **Ecosystem Restoration:** Rebuilding damaged habitats and maintaining ecological balance.
5. **Seed Sovereignty:** Seed saving and exchange networks preserve traditional, locally adapted seeds, reducing dependence on external seed markets.

#### **Research Methodology:**

The present study follows a qualitative and descriptive research approach. It is based mainly on secondary sources of data such as books, research articles, government reports, policy documents, and credible online resources related to the Indian Knowledge System and tribal communities. The collected data were analyzed using a thematic and descriptive method, focusing on key areas like traditional medicine, ecological practices, agriculture, and oral traditions of tribal societies. Relevant policies such as the National Education Policy 2020 and the Forest Rights Act, 2006 were reviewed to understand efforts toward preservation and integration of tribal knowledge. This methodology helps in understanding the significance and contemporary relevance of tribal contributions to the Indian Knowledge System.

#### **Suggestions & recommendations:**

There is an urgent need to systematically document tribal knowledge systems, especially those preserved through oral traditions, with the informed consent and active participation of tribal communities. Integrating tribal knowledge into formal education under the Indian Knowledge System framework can help preserve and transmit this heritage to future generations. Tribal communities should be recognized as primary custodians of their knowledge and involved in research, policy-making, and development planning. Legal and ethical mechanisms must be strengthened to protect tribal intellectual property rights and prevent exploitation. Effective implementation of existing policies such as the Forest Rights Act, 2006 and the National Education Policy 2020 is essential at the grassroots level. Academic institutions should promote interdisciplinary research on tribal knowledge systems. Development initiatives must adopt culturally sensitive and sustainable approaches that respect tribal traditions and ecological balance.

#### **Conclusion:**

The Indian Knowledge System is deeply rooted in the indigenous wisdom of tribal communities, who have preserved valuable knowledge through generations. Tribal practices in medicine, agriculture, ecology, and governance reflect sustainable and community-oriented ways of life. However, rapid modernization, displacement, and cultural erosion pose serious challenges to the survival of tribal knowledge systems. Despite supportive policies and initiatives, effective implementation remains limited. It is essential to recognize tribal communities as knowledge holders and protect their intellectual heritage. Systematic documentation and academic integration of tribal knowledge are necessary for its preservation.

Strengthening the role of tribal wisdom within the Indian Knowledge System can contribute significantly to sustainable and inclusive development in India.

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