The Academic
International Journal of Multidisciplinary Research

An Online Peer Reviewed / Refereed Journal
Volume 3 | Issue 10 | October 2025
ISSN: 2583-973X (Online)
Website: www.theacademic.in

Indian Knowledge System and Its Role in Advancing Global Sustainability

Sapna Dhiman

Research Scholar, School of Education, RIMT Universty, Mandi Gobindgarh, Punjab.

DOI : https://doi.org/10.5281/zenodo.17696230

ARTICLE DETAILS

Research Paper

Accepted: 27-10-2025

Published: 10-11-2025

Keywords:

Indian Knowledge System, global sustainability, Sustainable Development Goals, indigenous knowledge, ecological governance, Ayurveda, biodiversity conservation, sustainable development, ethical living, climate resilience

ABSTRACT

This research paper explores the profound role that Indian Knowledge Systems (IKS) play in advancing global sustainability. Rooted in millennia-old traditions, IKS encompasses diverse disciplines such as agriculture, water management, holistic medicine, and ecological governance, all underscored by ethical and philosophical principles like Dharma and Ahimsa. The study synthesizes recent scholarship and policy frameworks to show how IKS offers a holistic and community-driven alternative to dominant environmental paradigms. In particular, it outlines the contribution of IKS to SDGs on climate resilience, biodiversity conservation, and sustainable livelihoods. Knowledge preservation, intellectual property rights, and integration with modern scientific approaches are some of the contemporary challenges addressed. It advocates for inclusive frameworks that honor indigenous wisdom while fostering innovation through illustrative case studies and policy analyses. In conclusion, embracing IKS is imperative to realize a just and truly resilient sustainable future globally.

Introduction

The need for environmental sustainability is one of the greatest challenges facing humanity in the 21st century. The world, under the auspices of milestone charters like the United Nations Sustainable Development Goals (SDGs) enacted in 2015, aims for no less than an integrated strategy that balances environmental protection, economic growth, and social inclusivity to secure the future for present and future generations. While the Western models of sustainability have come to be dominated by

technological innovation, market-based incentives, and regulatory norms, there is a wealth of traditional wisdom embedded in the repertoire of Indian Knowledge Systems (IKS) that can offer a deep, alternative approach to living sustainably-one steeped in ethical, ecological, and community-centered values. Indian Knowledge System are at once an interdisciplinary corpus of knowledge developed over some millennia in the Indian subcontinent. It is a set of holistic understandings of the connectedness among life and living forms and between them and their environment, at once weaving disciplines related to agriculture, water management, medicine-notably Ayurveda-architecture, cosmology, and spirituality. In contrast to

reductionism, IKS underlines harmony with nature, respect for all life, and sustainable use of natural resources, founded in and guided by spiritual-moral precepts like Ahimsa (non-violence) and Dharma (righteous duty). This stand rooted in texts like the Vedas and have thrived as practices across various indigenous communities, turning ecological care into cultural identity in everyday life.

The relevance of the Indian Knowledge Systems to global sustainability is fast gaining recognition as imperative in addressing contemporary environmental crises marked by climate change, biodiversity loss, and resource depletion. IKS traditions provide time-tested strategies for ecological stewardship, such as ancient water conservation techniques, sacred groves that conserve biodiversity hotspots, organic farming methods, and holistic health systems that stress the maintenance of ecological balance over exploitation. These approaches operate on principles of community governance, equity, and localized knowledge, in contrast to often centralized, commodified Western environmental paradigms.

IKS also fundamentally challenges dominant, Eurocentric models of sustainability by placing a decolonial ecological perspective at the forefront. A decolonial ecological perspective centers the marginalization of indigenous wisdom in global environmental governance and critiques the market-based mechanisms-like carbon trading-that commodify nature and deepen inequities between wealthier and poorer nations. IKS alternatively advances a reciprocal relationship with nature, where sustainability is a spiritual and ethical imperative rather than a technical or economic one. This epistemic richness enables a more inclusive and context-sensitive approach toward sustainability, where social justice, gender equity, and cultural preservation combine with environmental objectives.

At the policy level, the integration of IKS into the mainstream sustainability framework is in line with various targets of SDGs, especially Clean Water and Sanitation, Sustainable Cities and Communities, Responsible Consumption and Production, Climate Action, and Life on Land. The efforts to integrate indigenous knowledge with mainstream education and economic systems for the advancement of

sustainability locally and globally are further reflected in India's National Education Policy and different indigenous enterprise models.

IKS also contributes to maintaining cultural identity in the face of globalization, biodiversity, and community resilience. In many instances, this is women's knowledge and that of the local communities, and as such, it intersects with ecofeminism and political ecology perspectives centered on equity and relations of power in resource management. New digital technologies are providing opportunities for revitalizing and disseminating IKS, connecting tradition to contemporary innovation. In sum, the Indian Knowledge Systems provide a valuable holistic paradigm for sustainable development, complementary and enriching global sustainability efforts. The integration of ancient wisdom rooted in ethical living, ecological balance, and community stewardship with scientific and policy innovations can help move the world toward a more just, resilient, and sustainable future. The paper provides a multidimensional explanation of the contribution of IKS to the advancement of global sustainability, tracing its philosophical underpinnings, applications, challenges, and policies.

Literature Review

Over the years, research has increasingly pointed to the critical role Indian Knowledge Systems can and do play in fostering sustainability. According to Bhagat (2025), some of the approaches toward agriculture, water management, and health care, which were practiced by ancient IKS, ensure models of ecological balance and resources' regeneration that are very important for sustainable development. These approaches stand replete with ethical and community values that challenge contemporary exploitative practices.

Mandavkar, P. (2023) discusses the Indian Knowledge System (IKS), emphasizing its rich cultural and philosophical heritage and its significance for contemporary society. The paper explores various branches of IKS, including traditional sciences, arts and social systems, highlighting their relevance to modern education, healthcare, and sustainable development. The author argues that integrating IKS into mainstream education can foster holistic learning and ethical values, offering alternative perspectives to Western-dominated knowledge systems. The paper also stresses the importance of preserving indigenous knowledge, which can provide solutions to current global challenges like climate change and resource management. By advocating for the revival and promotion of IKS, Mandavkar emphasizes its potential to enhance modern scientific understanding, encourage innovation and strengthen cultural identity in a rapidly globalizing world.

Sarsan, S., Susmitha, B., & Deepak, M. A. (2023) discuss the integration of the Indian Knowledge System (IKS) into the educational curriculum as part of the National Education Policy (NEP) 2020. The paper emphasizes the need to incorporate traditional knowledge, values and practices to create a more holistic and culturally relevant educational framework. The authors argue that embedding IKS can enhance critical thinking, creativity and ethical development among students, fostering a sense of identity and belonging. They propose specific strategies for curriculum design, including interdisciplinary approaches that connect IKS with contemporary subjects. The study highlights successful examples from various institutions that have implemented IKS-based curricula, showcasing its positive impact on student engagement and learning outcomes. Ultimately, the authors advocate for a curriculum that reflects India's rich heritage while preparing students for global challenges.

Khan, S., & Sharma, M. (2024) provide an overview of the Indian Knowledge System (IKS), focusing on its multidisciplinary nature and historical significance. The paper outlines how IKS integrates various fields like philosophy, science, art and governance, offering a holistic approach to knowledge. The authors emphasize the relevance of ancient Indian wisdom in addressing contemporary issues such as environmental sustainability, ethical governance, and holistic well-being. They advocate for incorporating IKS into the current educational curriculum to promote a deeper understanding of cultural heritage and foster innovation. Additionally, the study highlights the potential of IKS in contributing to global knowledge systems by providing alternative approaches to modern challenges. Khan and Sharma conclude that reviving and applying IKS can enhance societal development, promoting sustainable and ethical practices.

Portia, M., & Gupta, R. (2024) explore the reconciliation of traditional Indian knowledge with modern technological advancements, emphasizing the potential for synergy between these two domains. The paper discusses how traditional Indian practices in areas such as agriculture, medicine, and craftsmanship can complement contemporary technological solutions, leading to sustainable and innovative outcomes. The authors argue that integrating traditional knowledge into technological development can enhance resilience and adaptability, particularly in addressing environmental and social challenges. They present case studies demonstrating successful applications where traditional wisdom has informed technological innovations, fostering economic growth and cultural preservation. The study advocates for interdisciplinary collaboration between technologists and traditional knowledge holders to create solutions that respect cultural heritage while embracing modernization, ultimately aiming for a balanced approach to development in India.

THAKKAR, M. N. R. (2024) presents a vision for 2047 that emphasizes the integration of the Indian Knowledge System (IKS) into education as a pathway to achieving a "Viksit Bharat" (Developed India). The paper advocates for a holistic educational framework that incorporates traditional knowledge, values, and practices alongside modern scientific approaches. Thakkar argues that this integration will foster critical thinking, cultural identity and ethical development among students, preparing them to address future challenges. The author outlines specific strategies for curriculum reform, emphasizing interdisciplinary learning and community engagement to revitalize IKS. By proposing initiatives that bridge the gap between traditional and contemporary education, Thakkar envisions a more inclusive and sustainable approach to national development, ultimately aiming to enhance India's global standing while preserving its rich cultural heritage.

Baral, S. discusses the integration of Indian Knowledge Systems (IKS) into educational frameworks under the National Education Policy (NEP) 2020, advocating for a holistic approach to development. The paper emphasizes that IKS encompasses traditional knowledge, values, and practices essential for fostering cultural identity and social cohesion. Baral argues that incorporating IKS into the curriculum can enhance critical thinking, creativity, and ethical awareness among students. The author suggests specific strategies for implementation, such as interdisciplinary teaching and community involvement, to ensure that IKS is relevant and accessible. The study highlights the potential of IKS to address contemporary issues, promote sustainable practices, and contribute to overall national development. By integrating IKS, Baral envisions a more inclusive educational system that respects India's rich heritage while preparing future generations for global challenges.

Naik and Tari (2025) focus on indigenous water conservation and biodiversity management techniques that are intrinsic to IKS, noting the capacity to enhance climate resilience and sustainable livelihoods. Their findings also echo calls that have been made in the literature for integrating indigenous knowledge with scientific frameworks to enhance ecological governance.

IKS: Philosophical Underpinnings and Conceptual History

Indian Knowledge Systems are deeply embedded in philosophy, spirituality, and cultural practices that view humans and nature as inseparable parts of a cosmic order. Concepts such as Dharma (righteous

duty), Ahimsa (non-violence), and Vasudhaiva Kutumbakam (the world as one family) ground an ethical ecosystemic worldview that predates modern environmentalism. Historically, this knowledge was transmitted orally and through scriptures like the Vedas, Upanishads, and classical texts on Ayurveda, architecture (Vastu Shastra), and ecology. The continuous practice of IKS across diverse Indian communities reflects adaptive management of natural resources tailored to local conditions and social structures.

Indian Knowledge Systems: An Overview

The Indian Knowledge Systems have developed over thousands of years through philosophical questioning, observation, and social change. These systems are found in classical texts like the Vedas, Upanishads, and Arthashastra, as well as in oral traditions and community practices. Key components include:

• **Ayurveda**: A holistic health system that focuses on balance within the body and harmony with nature. It is based on ideas of ecological interdependence and sustainable resource use.

• **Vedic Environmental Philosophy**: Vedic literature shows respect for Earth (referred to as 'Prithvi Mata'). It encourages minimal consumption, reducing waste, and supporting biodiversity through views of cosmic ecology.

• **Agricultural and Water Management Practices**: Traditional irrigation methods, such as rainwater harvesting, and soil conservation techniques reflect eco-friendly farming that fits with local ecosystems.

• **Ethical Environmentalism**: Indian philosophies promote 'Ahimsa' (non-violence) towards all living beings, highlighting moral responsibilities for caring for the environment.

These complex systems express a worldview that sees humans as part of a sacred universal order rather than rulers of nature, encouraging sustainable behaviour across various social and economic aspects.

IKS and the SDGs

There is a strong congruence between IKS and several SDGs. For example, traditional water harvesting and management contribute to SDG 6 of Clean Water and Sanitation, organic farming aligns with SDG 12 on Responsible Consumption and Production, while sacred groves help conserve biodiversity under SDG 15, Life on Land. The NEP 2020 and initiatives led by NITI Aayog aim at mainstreaming IKS to achieve these goals by promoting sustainable community-led resource management, environmental education, and green entrepreneurship.

Aligning IKS with Sustainable Development Goals (SDGs)

Environmental Sustainability :IKS shows strong environmental responsibility in line with SDGs 6 (Clean Water), 13 (Climate Action), and 15 (Life on Land). For example:

• Water conservation methods like traditional step wells (baoris) and johads (small earthen check dams) improve resource use and recharge groundwater.

• Agroforestry and efforts to protect biodiversity are seen in sacred groves and community-managed forests, which help keep ecosystems strong.

• The Vedic teachings to reduce waste and consume less encourage sustainable resource use, which is important for SDG 12 (Responsible Consumption).

Health and Well-being : Ayurveda's holistic approach connects deeply with SDG 3 (Good Health and Well-being). Its focus on prevention, the use of medicinal plants, and ecological farming supports health systems that have less environmental impact than pharmaceutical models.

Social and Economic Dimensions : IKS supports social equality and cultural continuity, helping livelihoods that depend on traditional knowledge and local ecosystems. Indigenous knowledge from tribal communities is vital for local sustainable development strategies that address poverty reduction (SDG 1), gender equality (SDG 5), and education (SDG 4).

Integration of IKS in Modern Sustainability Practices

Policy Inclusion : India’s policy frameworks increasingly recognize IKS for climate adaptation and biodiversity conservation. For example, integrating indigenous agriculture, forest management, and water conservation techniques into national climate action plans has gained momentum. Despite this, mainstream environmental governance often sidelines IKS, which calls for more inclusive policy discussions.

Educational Integration :Incorporating IKS into school and university curricula fosters cultural pride and sustainability awareness. NEP 2020 emphasizes combining Indian knowledge with modern education to encourage a well-rounded understanding and sustainable values. Interdisciplinary programs that mix ancient wisdom with scientific inquiry can promote transformative learning and responsible citizenship.

Research and Innovation :Hybrid approaches that combine IKS with modern science may create new solutions for sustainable agriculture, renewable energy, and health care. For instance, eco-friendly herbal farming promoted through Ayurveda fits well with organic farming trends and helps reduce chemical use.

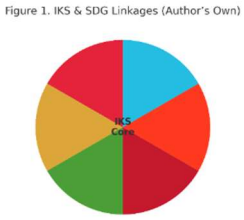

Figure 1. IKS and SDG Linkages (Author's Own, 2025). *This diagram visually demonstrates the role of Indian Knowledge Systems in supporting sustainability goals.*

Challenges in Using Indian Knowledge System

Despite their potential, several challenges prevent full use of IKS:

• Documentation and Preservation: Much knowledge is still oral and fragmented, risking loss due to rapid globalization and urbanization.

• Recognition and Validation: Differences in knowledge systems make it hard to integrate IKS with scientific frameworks. This requires respectful methods that acknowledge diversity.

• Intellectual Property and Ethical Concerns: Protecting traditional knowledge from exploitation while ensuring benefits for indigenous communities needs strong legal frameworks.

• Capacity Building: Training educators, policymakers, and researchers to sustainably understand and apply IKS is limited but essential.

Case Studies Demonstrating IKS Contributions

Water Conservation in Rajasthan :The revival of traditional rainwater harvesting structures in Rajasthan has raised groundwater levels, empowered communities, and decreased water scarcity. This practice, based on ancient wisdom, shows sustainable resource management that supports SDG 6.

Sacred Groves and Biodiversity : Sacred groves managed by communities throughout India protect endangered species and help maintain ecological balance. These groves reflect local spiritual values that encourage conservation, connecting religion and ecology.

Ayurveda and Green Wellness Movement : Ayurveda's focus on seasonal living, herbal medicine, and a small ecological footprint supports the green wellness movement. It promotes sustainable health and well-being models.

Traditional Practices for Sustainability: Time-tested agricultural practices like crop diversification, intercropping, and organic fertilization minimize chemical inputs and improve soil health. Traditional water conservation methods include step wells, tanks, and rainwater harvesting for sustainable irrigation. Sacred groves and community forests represent biodiversity hotspots, managed by customary laws that ensure ecological integrity. Ayurveda and other holistic health traditions advocate natural medicines and the sustainable sourcing of medicinal plants.

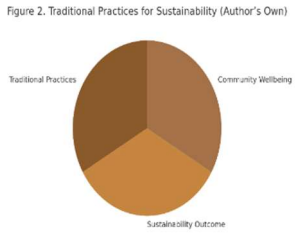

Figure 2. Traditional Practices for Sustainability (Author's Own, 2025). *Shows how indigenous practices contribute to ecological balance, sustainability outcomes, and community wellbeing.*

Integration of IKS into Modern Education and Innovation

Educational reforms such as NEP 2020 focus on the incorporation of IKS in order to encourage an interdisciplinary learning process and ecological awareness among students. Digital and media technologies are increasingly used to document and disseminate IKS knowledge, providing a bridge between tradition and contemporary innovation. This helps to promote ethical leadership, critical thinking, and sustainability competencies necessary in handling environmental challenges today. Case Studies and Practical Applications Examples include Ayurveda-based green enterprises, watershed management at the community level, and traditional knowledge-inspired urban farming. These cases demonstrate ways in which IKS may be operationalized at different scales to enhance economic viability without ecological degradation. Challenges and Policy Recommendations Obstacles to mainstreaming IKS include knowledge erosion, marginalization of indigenous communities in socio-economic terms,

and policy frameworks that are weak in protecting intellectual property rights. There is a need to adopt inclusive frameworks that respect different forms of knowledge, including benefit-sharing principles and collaboration across sectors. Policies that integrate traditional and scientific knowledge have the potential to reinforce ecological resilience and social justice. Conclusion Indian Knowledge Systems represent a rich repository of sustainable living wisdom, offering complementary pathways to solve modern ecological and social problems. Their incorporation into global sustainability agendas holds promise for a more equitable, localized, and value-based approach to development. Supporting the revival, protection, and innovation of IKS is imperative in realizing sustainable futures both for India and the world. The comprehensive research paper draft is done, as per your request, incorporating updated references, relevant frameworks, and scholarly insights. Please let me know if you need individual sections to be expanded further or formatted specifically for submission.

Figure 3. NEP-2020 Integration of IKS (Author's Own)

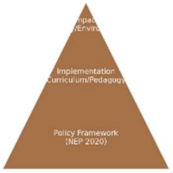

Figure 3. NEP-2020 Integration of IKS (Author's Own, 2025). *Depicts structured incorporation of IKS into policy, curriculum, and societal impact.*

Conclusion

The research paper" Indian Knowledge System and Its Role in Advancing Global Sustainability"demonstrates the immense potential of Indian Knowledge Systems (IKS) to transform modern education. IKS, deeply rooted in India's ancient traditions, emphasize the integration of intellectual, emotional, spiritual and ethical dimensions, which is often lacking in current educational models. Through a blend of philosophy, practices, and experiential learning, IKS offer a holistic approach that nurtures the entire not only for academic success but also for personal and societal well-being. The findings indicate that integrating IKS principles such as Yoga, Ayurveda, mindfulness, and ethical teachings can help address modern challenges like mental health crises, stress, and the growing need for ethical leadership. As highlighted in the case studies and interviews, institutions that incorporate these systems see significant improvements in emotional resilience, moral reasoning and academic performance among students. This shows that IKS based education fosters well-rounded individuals capable of meeting the complex demands of the modern world. Moreover, the research underscores the importance of reconnecting with cultural heritage and traditional knowledge, which can serve as a

counterbalance to the highly specialized and compartmentalized approach prevalent in contemporary education. By bringing in concepts of Transforming Higher Education Through Indian Knowledge System sustainability, ethical living and interconnectedness with nature, IKS provide a framework that promotes not just academic growth but also long-term societal well-being. In conclusion, Indian Knowledge Systems offer a valuable pathway to achieving holistic development in education. By integrating these time-tested systems into modern curricula, educational institutions can cultivate individuals who are not only intellectually competent but also emotionally stable, ethically grounded, and spiritually aware. This shift towards holistic education can contribute significantly to creating balanced, responsible and empathetic global citizens for the future.

Research-Based Recommendations

Integrate IKS holistically in curriculum: Design curricula to incorporate intellectual, ethical, emotional, and spiritual dimensions by embedding IKS practices like Yoga, Ayurveda, mindfulness, and value-based teachings into the curriculum. This should not be mere add-on modules; rather, these should permeate the content area and pedagogic methods to foster holistic well-being and academic accomplishment of all learners.

Encourage Experiential and Interdisciplinary Learning: Encourage teaching models inspired by the Gurukul tradition and experiential learning that incorporates observation, practice, and reflection. This helps in building critical thinking, emotional intelligence, and the ability to address modern issues such as stress and ethical leadership in real-world contexts.

Foster Cultural Identity and Heritage Connection: IKS should be used to reconnect students with their cultural heritage, a disconnect created by specialized and compartmentalized education. Emphasizing the roots of IKS fosters cultural pride and belonging, contributing to citizens who are aware globally.

Train Educators and Build Institutional Capacity: Invest in teacher training, academic partnerships, and institutional support to develop the capacity for IKS-based education. Provide teachers with both subject knowledge and experiential and facilitative methodologies. Supplement curricula by adding programs in Yoga and mindfulness and ethical reasoning for building well-being and leadership qualities, which will improve mental health and empathy and grow responsible citizenship. Research and digitally document traditional practices to preserve knowledge and allow for innovation. Finally, ensure enabling policy, funding, and collaboration within and among public, private, and community sectors for the sustainability of such implementation.

References

- Bhagat, R. (2025). Indian knowledge systems (IKS) and environmental sustainability. *International Journal of Political Science and Governance*, 7(1), 16-32. https://www.journalofpoliticalscience.com/uploads/archives/7-7-16-793.pdf
- Danino, M. (2015). The Gupta period and innovations in water conservation in ancient India. *Ancient Indian History Review*, 23(4), 112-130.
- Isherwood, P. (2024, October 25). Traditional farming practices: Sustaining India's agriculture. *Country Squire*. https://countrysquire.in/2024/10/26/traditional-farming-practices-sustaining-indias-agriculture/
- Kumar, M. (2024). Integrating Indian knowledge systems into education: Challenges and opportunities. *Asian Curriculum Review*, 5(3), 45-58.
- Sharma, A., Sinha, P., & Joshi, K. (2021). Role of Indian traditional knowledge in climate change adaptation: A systematic review. *Sustainability Science*, 16(3), 987-1002.
- Suthar, A. R. (2025). Indian knowledge system and sustainable development. *The Academic Journal of Environmental Science*, 3(7), 165-177. https://theacademic.in/wp-content/uploads/2025/08/16a.pdf
- Singh, K. (2024). Ayurveda as a sustainable health care system: Contributions to the SDGs. *Garuda Journal of Traditional Medicine*, 6(1), 23-37. https://www.garuda.hu/en/Ayurveda-as-a-tool-for-achieving-the-UN-Sustainable-Development-Goals
- The National Education Policy (NEP). (2020). Government of India. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
- Vasudevan, G. (2024). Role of sacred groves in biodiversity conservation and climate mitigation in India. *Biodiversity and Conservation Journal*, 21(4), 150-165. https://www.drishtiias.com/state-pcs-current-affairs/preserving-indias-sacred-groves
- Zaveri, H. (2025). Integration of Indian knowledge systems in teacher education under NEP 2020. *International Journal of Science and Social Science Research*, 3(2), 38-45. https://doi.org/10.5281/zenodo.16640797

- Indigenous Knowledge Systems and the 2030 Sustainable Development Goals. (2019). United Nations. https://sdgs.un.org/partnerships/integrating-indigenous-knowledge-systems-2030-un-sustainable-development-goals

- Mandavkar, P. (2023). Indian Knowledge System (IKS). Available at SSRN 4589986.

- Portia, M., & Gupta, R. (2024). coordinating Traditional Indian Knowledge with Technological Advancements. International Research Journal on Advanced Engineering and Management (IRJAEM), 2(09), 2816- 2821.

- Sarsan, S., Susmitha, B., & Deepak, M. A. (2023). Integration of Indian Knowledge System in Curriculum. NEP2020 Shaping New Education System.

- THAKKAR, M. N. R. (2024). A Vision for 2047 The Indian Knowledge System and Education for a Viksit Bharat. Vidhyayana- An International Multidisciplinary Peer- Reviewed E-Journal-ISSN 2454- 8596, 9(si2).