

CHAPTER 18

Indian Knowledge System and Sustainable Development Goals

Manik Rajopadhye and Vidhya Hittalmani***

ABSTRACT

India is rich in ancient knowledge and traditions. Contributions of intellectual personalities and several researchers have enriched the knowledge base of India offering holistic approaches in developing frameworks that offer inclusive and culturally grounded solutions for sustainable development. This paper examines Indian Knowledge Systems (IKS) in the context of SDG 1 (No Poverty), SDG 3 (Good Health and Well-Being), SDG 4 (Quality Education), and SDG 6 (Clean Water and Sanitation). It explores how ancient Indian practices are relevant to Sustainable Development Goals (SDGs). The present study incorporates secondary sources such as various websites, journals and books to understand about the topic for the study. The research reveals that over the period of years the progress of India is dependent on its ancient knowledge to reach the aspiring goal of all sustainable development goals.

Keywords: Indian knowledge system & sustainable development goals, No poverty, Good health & wellbeing, Quality education, Clean water & sanitation.

1.0 Introduction

Sustainable development denotes to the development that meets the needs of the present-day generation without compromising the needs of the future generations. Sustainable development has become an essential global priority in the 21st century with the issues and challenges in global scenario such as poverty, health crises, environmental degradation, and educational inequality. India has an extensive history of traditional knowledge known as the Indian Knowledge System (IKS). This knowledge system has been developed over thousands of years through observation, experimentation, and cultural practices. Ancient Indian manuscripts such as the Vedas, Upanishads, and Arthashastra contain valuable knowledge related to governance, healthcare, education, environmental management, and sustainable living.

**Corresponding author; Librarian, Library Department, D.Y. Patil International University, Pune, Maharashtra, India (E-mail: manik.rajopadhye@dypiu.ac.in)*

***Assistant Professor, Management Department, Shri. M. H. Kadakia Institute of Management and Computer Studies, Ankleshwar, Gujarat, India (E-mail: vidhya.hittalmani@gmail.com)*

Indian Knowledge Systems emphasize on ethical values, community welfare and harmony between humans and nature. The principles are aligned closely with the aims of sustainable development. Despite increasing interest in the relationship between Indian Knowledge Systems and Sustainable Development Goals, existing studies are conceptual and fragmented. There is limited research, inadequate coverage linking IKS with government initiatives and development policies. Therefore, the present paper is an attempt to understand the how Indian Knowledge Systems is supporting in achieving Sustainable Development Goals which further is important for promoting sustainable and inclusive growth and also to integrate traditional knowledge with modern development policies which can help achieve several SDGs effectively.

2.0 Literature Review

Niharika Sharma, Mridul Trivedi, Manisha Choudhary (2025), in their study throw light on how Indian Knowledge Systems effect sustainable development by maintain economic sustainability, protecting environment and continue for social well-being. According to M. M. Sheikh (2025), while discussing on Indian Knowledge System and Sustainable Development states that traditional knowledge supports environmental conservation, sustainable health practices, and community development and all should be aligned with SDGs.

Anshu Mishra (2025), in the research paper explain about the traditional practices such as Ayurveda, Yoga, Panchayati governance, and traditional agriculture promote environmental balance and social harmony. It further suggests that all these practices must be aligned with SDGs. Swagota Saikia, Nitesh Kumar Verma, Subhayan Chakraborty (2025), in their paper analyze Sustainable Development Goals with respect to the output in India and further highlight on the growing role of universities and open-access publications in promoting sustainable development research.

Naik and Tari (2025) in the paper focus on indigenous water conservation and biodiversity management techniques that are fundamental to IKS, remarking the capacity to enhance climate resilience and sustainable livings. The findings present in the literature for integrating indigenous knowledge with scientific frameworks to enhance ecological governance. Bhoomi Shroff (2025), in the paper presents that it is very much important to integrate Indian Knowledge Systems (IKS) including traditional, sustainable practices in agriculture, water management, and biodiversity conservation with the UN Sustainable Development Goals (SDGs). The paper also highlights about to consider environmental policies to proposes IKS as a viable, time-tested strategy for promoting ecological resilience. Mahajan, Y (2025), in the paper shares the views right from ancient wisdom to modern revolution: Leveraging Indian knowledge systems for Atmanirbhar Bharat

discusses on IKS as a broad spectrum of traditional practices and knowledge, including Ayurveda, agricultural practices, Vastu Shastra. It also focuses on broad spectrum of interconnected issues, such as eliminating poverty, enhancing healthcare, ensuring quality education, promoting sustainable communities, workable cities, fostering accountable production and consumption by taking into consideration climate change, and managing peace and justice.

Chandel & Prashar (2024), in the study throw light on how integrating IKS with NEP will promote the progress in understanding rich and diverse indigenous people, knowledge amid various stakeholders and revival of traditional knowledge with the aid of modern technology to build the contemporary society.

Gupta R. K. (2024), on one side emphasize on sustainable development, inclusive growth, and a balance between economic prosperity and social welfare that remains relevant in contemporary discussions on economic development and on the other side shares that the adaptation of Arthashastra's principles to the complexities of modern governance and globalized economies requires careful interpretation and contextualization Sharma R (2024), in the paper based on secondary data discusses about interdisciplinary and transdisciplinary research in the dissemination of the Indian knowledge system for the benefit of the society. The researcher informed about the use of each term, that is (I)India, (K) knowledge and (S) process.

Devi R., Gupta P. V., & Sharma D. V. (2022), outlines about combining IKS with modern scientific knowledge and technologies which can lead to innovative solutions. The paper discusses that how agroforestry, intercropping, and crop rotation are prevalent in many traditional farming systems which can improve soil health, boost biodiversity, and mitigate climate change effects. However, the adaptation of traditional agricultural practices to the challenges of climate change and increasing population pressures requires careful consideration and integration with modern agricultural technologies.

3.0 Objectives

1. To understand the concept of the Indian Knowledge System.
2. To examine the relationship between IKS and Sustainable Development Goals.
3. To analyze the contribution of IKS in achieving SDG 1, SDG 3, SDG 4, and SDG 6.

4.0 Research Methodology

This study adopts a qualitative and conceptual research. Secondary data is used to study about Indian Knowledge System and Sustainable Development Goals by reviewing literatures, research papers, policy reports, case studies. Data analysis is done in five parts.

Part one by understanding Indian Knowledge System. Part two by understanding Sustainable Development Goals. Part three by recognizing relationship between IKS and Sustainable Development Goals. Part four by identifying government schemes for the integration of Indian Knowledge System with Sustainable Development Goals with respect to SDG 1, SDG 3, SDG 4, and SDG 6. Part five remarking the progress in terms of SDG 1, SDG 3, SDG 4, and SDG 6 by analyzing various government reports. Findings are presented to understand the relationship between the IKS and SDG through existing studies.

5.0 Data Analysis

5.1 Part 1: Indian Knowledge System

The Indian knowledge system incorporates a enormous array of traditional wisdom that has advanced thousands of years ago in the India. It incorporates insights from ancient scriptures, cultural traditions, philosophy, science, healthcare, agriculture, education, and environmental sustainability. This knowledge was passed down from generations through oral traditions, texts, and educational systems.

Over the period of time, Indian scholars made notable contributions in several fields. For example, Aryabhata contributed to astronomy and mathematics, while advanced knowledge in medicine through Ayurveda was developed by Sushruta and Charaka. Ancient Indian education systems such as the Gurukul System highlighted on holistic learning, incorporating moral values, and practical knowledge.

Important components of Indian Knowledge System include, Ayurveda which is a traditional system of medicine focusing on preventive healthcare, practice of yoga help in physical, mental, and spiritual well-being, traditional agriculture for organic crops, water conservation systems such as stepwells and rainwater harvesting, the Gurukul system of education emphasizing on individual's holistic learning. The Indian Knowledge System is not only a reflection of India's cultural heritage but also provides sustainable solutions for contemporary issues and modern challenges in several areas such as healthcare, education, conservation of the environment, and social welfare. It embodies a holistic approach to knowledge that involves ethical values, scientific understanding, and sustainable living. It ensures that the contemporary world is a better place to live.

5.2 Part 2: Sustainable development goals

The Sustainable Development Goals (SDGs), are also known as the Global Goals, which were launched by the United Nations in 2015 as part of the 2030 Agenda. As part of the 2030 agenda, seventeen new Sustainable Development Goals (SDGs) and 169 targets to stimulate action for entire globe reflecting for over 15 years on issues critical to humanity and the planet have been identified. The global community such as poverty, health issues,

educational inequality, and environmental degradation. This was a worldwide demand of action to ensure that by the year 2030 each and every person on earth enjoy peace and prosperity along with protection of the planet. These seventeen goals aim to achieve sustainable development by fostering a balance between economic growth, social inclusion, and environmental protection.

In the September 2015 UN Summit, the Prime Minister of India pledged its commitment to the SDGs. It was 1st January 2016 when the SDGs officially came into force. In line with this, the traditional dimensions of sustainable development goals were taken one step ahead with the focus shifting to the people, planet, prosperity, peace and partnership. Hence, the goal strives to put an end to poverty and hunger, to protect the planet from degradation, and ensure that all human beings enjoy living on earth, fulfilling their lives, foster peace. The goal is also about comprehensive societies which are free from fear and violence. Hence, it is crucial to implement this Agenda through a revitalized Global Partnership with the participation of all the stakeholders and countries.

India holds 109th position in the world and out of the total SDG goals attained by the country indicates the SDG Index Score of 63.99% according to the SDG Index Rank report. The overall SDG score for the country has enhanced from 66% in 2020-21 to 71% in 2023-24 which indicates a positive move in attaining the sustainable development goals.

5.3 Part 3: Relationship between IKS and sustainable development goals

- *SDG 1 - No Poverty*: Indian traditional occupations such as agriculture, handicrafts, weaving, pottery, and herbal medicine play a crucial role for poverty reduction. Preservation of Indigenous Skills and Crafts such as handloom weaving, pottery, and metalwork provide employment opportunities.
- *SDG 3 - Health and Well-being*: SDG 3 aims are rebounded in India's strength which lies in the various healing systems of Ayurveda, Yoga, Siddha system of medicine. These play a strong emphasis on mental equilibrium, overall well-being, and act as a preventive treatment. Another aspect is Charaka Samhita and Sushruta Samhita, which address mental health, hygiene, and a balanced diet. India's contribution to mental and physical health is highlighted by the widespread recognition of International Yoga Day celebrated on June 21.
- *SDG 4 - Education and Knowledge*: India's ancient institutions like Nalanda and Takshashila demonstrate inclusive and multidisciplinary education system. In line with SDG 4 (Quality Education), the Gurukul system encouraged moral growth and hands-on learning. The Indian government's current IKS integration programs, such as the National Education Policy 2020, promote indigenous knowledge in curricula.
- *SDG 6 - Clean WATER AND SANITATION*: Atharva Veda and Arthashastra highlight on the sustainable use of all the natural resources. Rainwater collection, crop rotation,

ayurvedic farming, and afforestation techniques. ancient Indian discipline such as like Vrikshayurveda focus on the holistic care, cultivation, and health of plants, often regarded as an agricultural application of Ayurvedic principles.

5.4 Part 4: Integration of Indian Knowledge System with sustainable development goals with respect to SDG 1, SDG 3, SDG 4, and SDG 6

Several Government schemes are developed to effectively and efficiently utilize Indian Knowledge System with Sustainable Development Goals. These schemes act as an initiative which play an important role in preserving and promoting the Indian Knowledge System while supporting sustainable development. Several modern schemes and policies were designed by integrating it with traditional knowledge, these schemes contribute to multiple Sustainable Development Goals such as poverty reduction, quality education, good health, clean water, and sustainable communities.

5.4.1 Various Government Schemes Supporting IKS and SDGs

SDG 1 - No Poverty

- Skill India Mission to support traditional crafts, artisans, and rural industries to improve employment opportunities.
- National Innovation Foundation (NIF) which encourage grassroot innovations and traditional knowledge from rural communities and farmers.
- Vedic Heritage Portal which supports in digital preservation and dissemination of ancient Indian texts and knowledge traditions.
- Make in India to promote new businesses so as to generate income and reduce poverty.

SDG 3 - Good Health and Well-being

- National AYUSH Mission to Support traditional healthcare systems like Ayurveda, Siddha, and Unani to improve public health and promote preventive healthcare.

SDG 4 - Quality Education

- New Education Policy (NEP 2020) which integrates Indian knowledge, languages, culture, and traditional practices into modern education systems.
- Introduction of Indian Knowledge System as a subject as per NEP to Promotes research, education, and integration of traditional Indian knowledge in modern academic fields.
- Digital India Initiative which uses technology to preserve and promote Indian knowledge resources and educational materials.

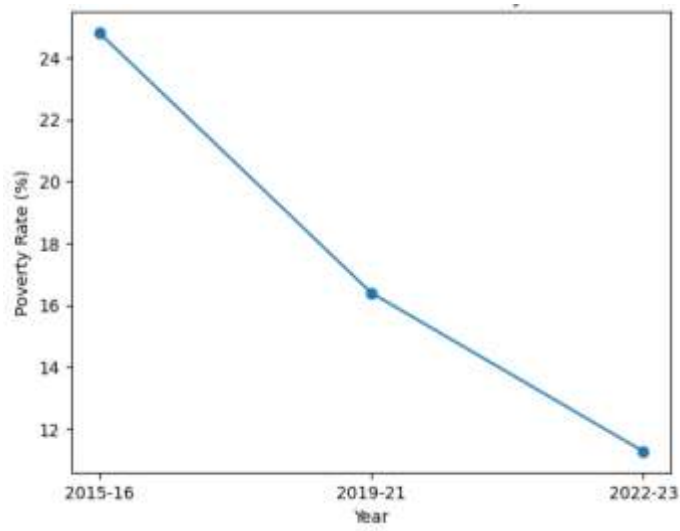
SDG 6 - Clean Water and Sanitation

- Jal Jeevan Mission which promotes water conservation and sustainable water management inspired by traditional water practices.

5.5 Part 5 – Survey of government reports

- *SDG 1 – No poverty:* According to the report of NITI Aayog and SDG India Index 2023–24, Multidimensional poverty has shown a decrease from 24.8% in 2015–16 to around 11.28% in 2022–23. Around 24.8 crore people moved out of multidimensional poverty between 2013–14 and 2022–23. Several Government schemes are aligned with traditional livelihood practices such as agriculture, handicrafts, and indigenous skills supported by Indian Knowledge Systems like housing, sanitation, and food security programs have helped improve living standards and reduce poverty.
- *SDG 3 – Good health and well-being:* As per various Government reports such as Ministry of Health and Family Welfare, Ministry of AYUSH, Niti Aayog, Sample Registration System, National Family Health Survey, and National Health Profile shows a quantum improvement in health indicators. Maternal mortality rate declined to about 97 per 100,000 live births whereas Child immunization coverage reached for about 93%. Traditional healthcare practices like Ayurveda and Yoga complement modern healthcare systems which are promoted by the Ministry of AYUSH. Thousands of AYUSH hospitals and dispensaries are opened promote traditional medicine system.

Figure 1: Reduction of Multidimensional Poverty in India



- *SDG 4 – Quality education:* According to the Government reports such as NITI Aayog, Ministry of Education, Annual Status of Education Report, highlights a significant progress in education. Elementary education across India has shown 96.5% enrollment whereas Gross Enrollment Ratio in higher education increased from 23.7% in 2015–16 to 29.5% in 2022–23. Another progress in education system shows that 88.65% of schools have electricity and water facilities and about 57.2% computers with 53.9%

internet access in the schools. Moreover, the National Education Policy 2020 encourages integrating Indian Knowledge Systems into education to promote cultural and sustainable learning.

Figure 2: Growth in Higher Education Enrollment in India

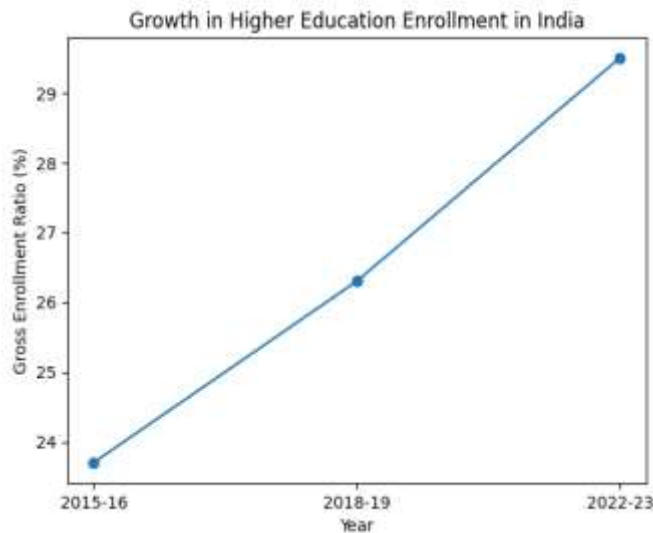
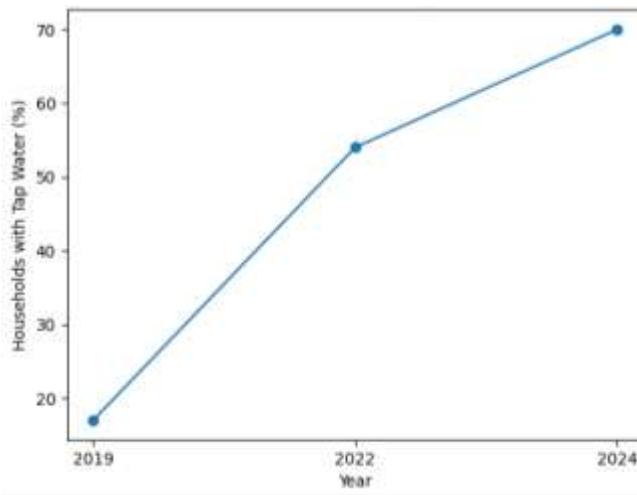


Figure 3: Rural Household Access to Tap Water in India



- *SDG 6 – Clean Water and Sanitation:* As per the Government reports such as Swachh Bharat Mission, UNICEF, Department of Water and Sanitation, there has been observed major improvements in sanitation and water supply. Millions of households have

received tap water connections through national water supply programs and around 99.29% rural households have access to improved drinking water sources whereas all districts have achieved Open Defecation Free (ODF) status under sanitation programs.

6.0 Findings

The study reveals important findings related to each SDG taken for the research

1. *No Poverty (SDG 1)*: Systems thinking; human, ecological, and spiritual realms seen as interdependent. Crafts, cottage industries, and local value chains (handloom, artisanal foodways) offer decentralized income generation.
2. *Good Health & Well-being (SDG 3)*: Preventive care models can be developed through Ayurveda and Yoga, practice of good health practices in the community, and budget friendly costs for diseases. Traditional medicinal plant knowledge, and dietary routines strengthen primary care in rural areas.
3. *Quality Education (SDG 4)*: Nalanda/Takshashila model provides interdisciplinary, ethical, and mentored learning. Education system to follow geographic area-based curricular incorporating local knowledge, languages, and crafts foster contextual education and retention.
4. *Clean Water & Sanitation (SDG 6)*: Ancient water-harvesting systems such as stepwells, johads, tanks, and bunds demonstrate local engineering for recharge, reuse and equitable circulation and distribution.

Table 1: Contribution of IKS to Selected SDGs

Government Initiative	Contribution of Indian Knowledge System	SDG Goal
Mahatma Gandhi National Rural Employment Guarantee Act	Traditional skills such as handicrafts, agriculture, and indigenous entrepreneurship create rural employment opportunities.	SDG 1 – No Poverty
Ministry of AYUSH	Ayurveda, Yoga, and other traditional healing systems promote preventive healthcare and holistic well-being.	SDG 3 – Good Health & Well-being
National Education Policy 2020	Integration of traditional knowledge, culture, and ethical values into modern education systems.	SDG 4 – Quality Education
Jal Jeevan Mission	Traditional water conservation practices such as stepwells, tanks, and rainwater harvesting.	SDG 6 – Clean Water and Sanitation

7.0 Conclusions / Implications

Indian Knowledge Systems offer several sustainable solutions to many modern development issues and challenges. Traditional practices associated to agriculture,

healthcare, education, and water management are closely aligned with the goals of the Sustainable Development Goals which was developed by the United Nations. Several studies and government reports indicate that India has made substantial growth towards achieving Sustainable Development Goals. Improvements in poverty reduction, healthcare services, educational access, and water management demonstrate the effectiveness of national policies and traditional knowledge practices. Indian Knowledge Systems support to sustainable livelihoods, preventive healthcare, value-based education, and environmental conservation, which are aligned with the objectives of sustainable development.

However, India still has a long way to go ahead in terms of achieving SDGs/ Indian knowledge System is not just a cultural asset but a strategic imperative that complements modern initiatives to ensure a more sustainable and equitable future. By overcoming the challenges and integrating traditional wisdom with modern technology and policy frameworks, societies can achieve sustainable and inclusive development.

8.0 Recommendations

1. IKS-based courses can be designed to promote awareness and practical applications for sustainable development in schools, colleges and universities.
2. Research institutions should document all the knowledge based practices related to agriculture, medicine, water management, and environmental conservation that can support in achieving SDGs. Further, interdisciplinary research should be encouraged to scientifically validate traditional knowledge.
3. Government can take various initiatives and offer different schemes for the beneficiary to promote research, funding, and implementation of IKS-based solutions.
4. Proper documentation, digital archives, and community knowledge centers should be established to preserve traditional knowledge for future generations.
5. Traditional farming systems like organic farming, mixed cropping, and water conservation techniques can be emphasized to help achieve SDGs related to poverty, food security, and environmental sustainability.
6. Healthcare practices like Ayurveda, yoga, and naturopathy can complement modern medicine to improve public health and well-being.
7. Training programs should be organized for farmers, artisans, and local communities to revive traditional knowledge and apply it in modern sustainable development practices.
8. Indian Knowledge Systems should be integrated into modern development policies.

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