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Indian Knowledge System and Economy

Uttar Pradesh - Uttarakhand Economic Association (UPUEA)

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Office Address

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Correspondence Address

Prof.Vinod Kumar Srivastava
General Secretary, UPUEA,
Department of Economics and Rural Development
Dr. Rammanohar Lohia Avadh University, Ayodhya (U.P.)
Mob.No. 09415382891, 08840416781
E-mail : vksb621@yahoo.com / Website : www.theupuea.org

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INDIAN KNOWLEDGE SYSTEM AND ECONOMY

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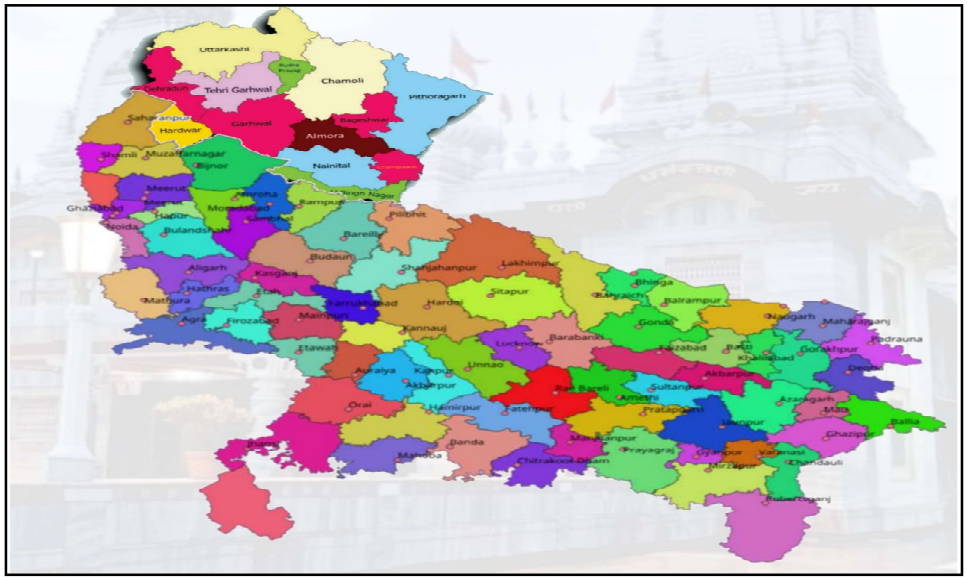

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Prof. Vinod Kumar Srivastava
General Secretary
Uttar Pradesh-Uttrakhand Economic Association (UPUEA)
Former Head, Department of Economics and Rural Development
Dr. Rammanohar Lohia Avadh University, Ayodhya, (U.P.)
Mob. : +91-9415382891
8840416781
E-mail : vksb621@yahoo.com
Web. : www.theupuea.org

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From Secretary's Desk

Established in 2005, the Uttar Pradesh-Uttarakhand Economic Association (UPUEA) has achieved remarkable growth, flourishing into a premier society of economists. In less than two decades, it has garnered an impressive 3500 life members, a testament to its widespread recognition and influence. Dedicated to advancing economic research across both states, UPUEA actively enriches the field through its publication of research findings, solidifying its role as a pivotal intellectual hub. The UPUEA organizes enriching annual conferences, creating vibrant forums where economists converge to present their latest research, forge valuable collaborations, and engage in stimulating intellectual discourse. Through its unwavering commitment to curating high-quality gatherings and nurturing research collaboration, the UPUEA plays a truly significant role in enriching and advancing economic understanding across both Uttar Pradesh and Uttarakhand.

The Uttar Pradesh-Uttarakhand Economic Association (UPUEA) is gearing up for its 21st Annual National Conference, a three-day event scheduled in the last week of June 2025 (27th-29th June 2025). We have received more than Two Hundred Sixty (260) Research papers under the broad theme of the conference: **"Strengthening Socio-Economic Security for a Resilient India: Challenges and Policy Framework".** This framework must strategically balance continued economic growth with equity and environmental sustainability to ensure a prosperous and inclusive future for all Indians. Researchers and economists have a great opportunity to contribute their expertise by submitting papers on five key sub-themes: *Ecological Sustainability, Fostering Livelihood Security, Fiscal and Financial Stability, and the Indian Knowledge System and Economy and Sustainable Development of Uttar Pradesh and Uttarakhand*While getting papers accepted for publication in our conference proceedings is a major accomplishment, we consistently face the persistent challenge of delayed submissions. This recurring issue of last-minute entries unfortunately disrupts our carefully planned conference schedule and can impact the overall quality of the proceedings. A timely submission is absolutely

crucial for ensuring a smooth and efficient conference experience for everyone involved. To guarantee a seamless conference experience and the prompt publication of all full papers in the proceedings, we kindly urge all interested members to reach out to the General Secretary for any clarifications or the latest updates. Your adherence to the specified page limits will be instrumental in ensuring a truly well-organized and informative conference.

The theme of the UPUEA Conference 2025 serves as a beacon for addressing the socio-economic and environmental challenges of Uttar Pradesh and Uttarakhand. The UPUEA extends its sincere thanks to the numerous funding agencies and institutions whose generous support has been instrumental in facilitating conferences, journal publications, and the printing of conference proceedings. The association is also indebted to *Right Way Publication & Distribution,* New Delhi, for their efficient and timely printing services.

(Vinod Kumar Srivastava)
General Secretary

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Indian Knowledge System And Economy

An Economic Reflection on Responsible Consumption and Production (SDG-12): From the Perspective of Indian Knowledge System

Dr. Daminee Srivastava[1]

ABSTRACT

Responsible consumption and production activities are such activities which are very necessary in present times from the point of view of nature and natural resources. In ancient times, almost all human civilizations were nurturing of natural resources, but industrial revolution started exploiting nature. Natural resources were depleted along with industrial development. After the Industrial Revolution, the equilibrium level declined, the needs of man started turning into greed. Human thinking was drawn to the point that "more achievements more growth". All these activities resulted in depletion of natural resources. To correct the imbalance prevailing in nature, social thinkers and environmentalists started the discussion of environmental protection. One of the main points is Responsible consumption and production. It refers to that kind of activities by consumers and producers which creates minimum damage to the environment. Being environmentally responsible consumer behavior and production activities can contribute maximum to environmental development. If consumers and producers carry out their daily activities with a responsible attitude, then surely the environmental damage that occurs day by day can be prevented. Efforts will be made to discuss and present suggestions on such issues through the present study. This research study will be analyze the consumption and production pattern of society. This descriptive research study will be based on secondary data from the various sources like journal, websites, research articles, research projects etc.

Keywords: *Responsible Consumption & Production, Sustainable Development Goal, Consumer behavior, Natural Resources, Responsible attitude.*

Introduction

The attribute responsibility teaches sincere use of goods and services. Responsible consumption and production refers to the consumption and production of activities, which has zero wastage of resources. The main focus here should be the word 'responsible'. Being in human form on this earth we are all doing the work of consumption and production. Human Produces and consumes all the goods and services he needs. From the day first person comes into this word his consumption starts

1. Assistant Professor, Department of Economics, Arya Kanya Degree College (University of Allahabad), Prayagraj. E-mail: daminee05@gmail.com

and production work is done only to fulfill the need of consumers. Man depends on nature and natural resources for all their production activities. Understanding these needs of man nature has provided many natural resources. Just as a mother arrange all kinds of essential goods and services for her child. Similarly nature has provided us with all the natural resources that are why it is Mother Earth or Mother Nature for us.

As father of the nation Mahatma Gandhi said that, "The Earth provides all resources to satisfy the needs of every man but it cannot satisfy man's greed". we can say that the consumption done by the person is tolerable by the nature but excessive and greedy use of natural resources is becoming unbearable by the nature therefore it is necessary the consumption and production done by human should be based on the concept of Sustainable Development. Sustainable development is such a process of development in which all the needs of the present generation can be met without negatively affecting the natural resources and the needs of future generations can be ensured.

United Nations has set 17 sustainable development goals, which are very important to achieve by 2030 for the entire human race. And among that sustainable developments goal-12 (SDG12) is Responsible consumption and production.

ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERN

Source: LOGO of SDG-12, United Nation Environment Programme

These are the 8 targets which creates to achieve SDG-12, Responsible Consumption and Production:

12.1: Implement the 10-year framework of programmes on Sustainable Consumption and Production

12.2: Sustainable management and efficient use of natural resources

12.3: Halve per capita global food waste and reduce food losses

12.4: Environmentally sound management of chemicals and all wastes

12.5: Reduce waste generation through prevention, reduction, recycling and reuse

12.6: Encourage companies to adopt sustainable practices and to integrate sustainability information into their reporting cycle

12.7: Promote public procurement practices that are sustainable

12.8: Rationalize inefficient fossil-fuel subsidies

Objectives

- To analyze the economical concern about responsible consumption and production in present scenario.
- To analyze the idea of responsible consumption and production in the context of Ancient Indian Culture and Medieval Indian Culture.

Consumption and Production Pattern in Present Scenario

Along with the United Nations, India is also committed to fulfilling these goals. Study of how every citizen of India and how every organizations/ institutions/ firms are working in achieving this goal becomes very important. This is to say, what type of pattern a consumer adopts throughout his life and individual producer in all his production activities so that responsible consumption and production can be carried out. This subject demands for such a study in which all those human activities which are giving desirable and undesirable results for achieving this goal. It is very essential to cover all the problems in the concepts of economics. Such as-

- As mentioned in the reports that by 2050, India will be the country whose population will be more than all the countries in the world. The earth is not capable to fulfil the need of excess population. Excessive demographic pressure leads to excessive exploitation of natural resources. Earlier Malthas explained, that the human population growth more rapidly than natural resources. Human population follows growth rate on geometric series manner and natural resources follow growth rate on arithmetic series manner. After few years the balance and equilibrium between human population and natural resources become very harmful. After that nature tries to maintain equilibrium through natural calamities such as famine earthquake diseases war etc. Ensure safe and easy reach of modern contraception even ruler or remote areas make use of contraception. We should focus on infant mortality rate. Reduce infant mortality rate and child mortality rate. Sex education should be provided.
- India is an agricultural country. Indian agriculture is full of diversities just as India is a country of diversity. Up to 70% of the country's economy is dependent on agriculture. India produces about 3 times more than the domestic consumption. This surplus production can be used to increase exports and provide food security for all. But due to the lack of proper storage of food grains, a lot of food grains get destroyed which is not of any use. The United Nation Food and Agricultural Organisation (FAO) estimates that more than 40% of food produces are wasted. The main cause of this loss is the lack of post-harvest storage facilities. A study by National Academy of Agriculture Sciences (NAAS) highlights that lack of proper storage facility and cold storage for food grains is the main reason behind wasting food grains.
- Over-exploitation of water in traditional agricultural practices is depleting groundwater levels. There is a need to adopt agricultural technology from Israel, which can grow more agricultural food grains in less water through drip irrigation and other techniques in the least amount of water. According to the reports of Ministry of Agriculture, about 80% of the total surface and ground water available in India is used for agriculture and allied sectors, in which about 40% of the water usage goes to waste. Farmers of many states, who grow such food grains in the attraction of Government schemes, minimum support price, etc., by which excessive water is

used which creates negative effects for the ground water level. We should learn and adopt rain water harvesting.

- For the storage of durable and non durable commodities there are so many unsustainable practices like the use of plastic, use of chemicals and other such things are generates uncountable harmful amenities. Many such chemicals are used in the process of storage, marketing, distribution etc, so that commodities do not spoil for a long time. Plastic is used so that their marketing can be done easily.
- The contaminant gases emitted by excessive use of transportation are harming the environment. For personal convenience, a person is giving more importance to his personal vehicle resources. If they use public resources, then the emission of these polluted gases will be minimum and the environment will become healthy. Smoke of industries is very harmful for nature.
- Today, most of the part of production in economy is based on non-renewable energy sources. We all are consuming most of the non-renewable energy sources. Use of fossil fuels, coals, natural oil, natural gases, minerals, nuclear energy etc, creates many harm in nature. Such as- it produces green house gases. Wastes of these are generally non-biodegradable. Creates acid rain, etc.
- Now a day Government and other institutions follow untenable practices for developing urbanization. After the indiscriminate felling of trees, the construction of roads, bridges, buildings etc are not examples of responsible production. A lot of cultivable land is destroyed for the creation of such urbanization.
- Problem of E-wastages are major concern. Dispositions of electronic gadgets are not eco friendly. The person is consuming more electronic equipments like mobile, laptop, I-pad, computer, television etc for his convenience. But no one knows the methods of disposal of all these consumption items.

Roots of Responsible Consumption Production in Ancient Indian Culture

The responsible consumption and production, which remains relevant today, has roots in our ancient civilization culture, while the teachings of western countries were repressive in nature. It is not only a matter of today it is very ancient subject. The lesson of responsibility was taught in the education of Indian culture. Harmony and responsibility lies in the values of Indian culture. It is inherent in many forms, such as responsibility towards nature, responsibility towards earth, responsibility towards society, responsibility towards human civilization, responsibility towards behavior etc. Our Vedas, Upanishads, Samhitas, and others scriptures spoke of having a responsible attitude towards natural resources.

It is mentioned in the Atharvaveda, "Ten tyakten bhunjeethah" which means that it should be used according to the need and production capacity. Produce as much as you can, consume as much as you need. That is, Atharvaveda also allows use only as per requirement. Man should do production work for the society according to his capacity so that he can contribute maximum in the progress of the society. Consuming more of one can become a hindrance in the consumption of another person. Thus the Atharvaveda explains responsible consumption and production.

At present, information is received through such news that many forests are being cut like human beings, the present society cannot develop without the mausoleum of forests. Development does not mean the depletion of natural resources. It is mentioned in Atharvaveda, "Aranyam te Prithvi Syonamastu" that means forests are the lungs of the earth. If there are no forest trees and plants on the earth, then the people of the earth will not be able to breathe. Due to the increase in air pollution, many health borne diseases have started to arise.

A major part of the economy is linked to agriculture. More than 2000 types of crops are mentioned in Rigveda. The beneficial facts related to agriculture were already written in the Vedas. The things written in the Vedas such as, There should be a producer who is equally attached to the output of production as well as input for production. Agricultural production work done only for profit making can create problems for the future. as Atharvaveda said, "Puto Aham, Prithivya Mata", that mean the earth is our mother, we should presereve and protect nature. Atharvaveda explained, "Annam hi bahukurveet, anna hitam vratam, annam hi brahma" that means food grains are precious for us, we should not waste it. Also so many vedas tought us which is relevent in present such as knowledge about medicine explained in Ayurveda, knowledge about weaponry in Dhanurveda, knowledge about music in Gandharvaveda, knoledge about architecture in Shilpveda, process of sustainable development ellaborated in Yajurveda, etc.

Ancient civilizations worshiped the components of the environment. The Sun who energized all beings was worshipped. Rivers were considered life-saving. People had great affection for the trees of Peepal, Tulsi, Banyan, Name, Mango, Banana etc. From the Indus Valley Civilization to the Medieval-Mughal era, the love for the environment was expressed in all Indian culture. Till this time man was always grateful towards the environment. He used to live with this thought "return more than you take from nature". A balance was established between the level of consumption and production of natural resources and human beings. The period of environmental exploitation from the beginning of the industrial revolution of the modern era. Industrial revolution beginnings in Europe, colonization around the world that the time when man became selfish.

Evidence of Responsible Consumption & Production in Medieval Indian Culture:

Indian Medieval history spans about 800 years, during the Mughal and Sultanate period, many examples of environmentally friendly activities are found. Such techniques were adopted in the building architecture and construction, which had proper arrangements for controlling the temperature. In building construction, rooms were built according to sunrise and sunset by knowing the direction of courtyard, window and veranda. The existence of gardens (bagh) in Mughal architecture has been mainly praiseworthy. The development of the concept of planting trees on the sides of the roads is an example of Mughal architecture, so that the people can enjoy resting under the shelter of trees. During the period of Firoz Shah Tughlaq, Babur, Akbar, Jahangir, ShahJahan etc., various such steps were taken which can be considered as an example of responsible consumption and responsible production. Firoz Shah Tughlaq constructed canals and reservoirs so that the irrigation system could run smoothly. Babur's Tuzuk-e-Baburi mentions environmental protection and such activities which are eco-friendly. Babur developed the Charbagh system which was adopted by all the Mughal rulers and the Charbagh system is relevant even today.

It is mentioned in Tujuk-e-Jahangiri that Jahangir built many baghs in which Khusro Bagh, Shalimar Bagh, Nishat Bagh etc. are important. It is mentioned in Tujuk-e- Jahangiri, that Jahangir had made rules for hunting. In these hunting rules there was a ban on hunting of endangered animals, so that such animals can be protected which come under the category of extinct animals or danger. Ustad Mansoor was a famous painter in Jahangir's court who used to give beautiful messages through paintings of animal. Jahangir done studies on plants and animals in which he got valuables on their breeds. And many such strong studies were also published in the society so that their breed could be preserved. Also he made rules for improving land management.

Recommendation and Suggestions

The direct aspects of environmental protection continue to be discussed. Such as deforestation, industrialization, excessive consumption of chemicals, etc but such indirect aspects which are a part of human life as well as harming the environment discussion on these issues is almost non-existent. There is need for a responsible consumption and production. Some key points such as:

- Need for the population control, promote late marriages and adoption culture.
- Need for the agricultural reforms such as use of fertilizers and harmful pesticides should be ban, maintenance of buffer stock, need to promote regional climatic crops
- Use of plastics should be ban. Every commercial activities should be limited.
- Rational use of industrial activities, production and industrial wastes.
- Promote renewable energy sources.
- Tourism should be restricted to a certain areas and the number of registration for tourist should be limited for all time season.
- Expansion of urbanization should be limited and rational toward s natural resources.
- Plant more trees and control deforestation.
- Educate people for environmental education, and environment education should be part of various curriculums for students.
- Promote environment friendly programmes, schemes and initiatives.

Conclusion

As father of the nation Mahatma Gandhi said that, "The Earth provides all resources to satisfy the needs of every man but it cannot satisfy man's greed". we can say that the consumption done by the person is tolerable by the nature but excessive and greedy use of natural resources is becoming unbearable by the nature therefore it is necessary the consumption and production done by human should be based on the concept of Sustainable Development. Sustainable development is such a process of development in which all the needs of the present generation can be met without negatively affecting the natural resources and the needs of future generations can be ensured. Therefore as much as man is giving attention to fulfill of consumption, we should also pay attention to the responsibility in their all consumption and production activities for the sake of nature. If the consumption and production of a person is responsible and pro-environment then we can keep the

natural resources alive for a long time because this nature and natural resources are for the people of the present time and also for the future generation.

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Indian Knowledge System: Contribution and Relevance in Modern Education

Dr Mahesh Kumar[1] & Akanksha Singh[2]

ABSTRACT

Since ancient times, the Indian Knowledge System, built upon deep wisdom, has been fundamental in developing education together with philosophy and science alongside governance structures. Multiple academic fields have derived their vital concepts from IKS through various disciplines, including Aryabhata's mathematical system, Bhaskara's astronomical theories, Ayurvedic medical science, and Panini's linguistic framework. Education today needs the implementation of the Indian Knowledge System because this brings together different learning disciplines while connecting historical knowledge with present-day scholarship. According to the National Education Policy (NEP) 2020 mainstream education needs, IKS inclusion because this approach promotes both experiential learning and ethical values and sustainability. The interdisciplinary nature of IKS promotes both essential thinking and problem-solving processes together with contextual learning that prepares students for the 21st century. Mental wellness, along with cognitive improvement, can be achieved through Indian traditional practices, including yoga and mindfulness, which stem from ancient cultural customs. Modern education faces several obstacles in IKS incorporation because of inadequate written documentation and digital access and missing pedagogical standards. The newer technological advances, together with research developments and policy advocacy, provide open doors to reestablish and transform this traditional knowledge system for current applications. It is concluded that a balanced approach is required to develop a system that combines traditional wisdom with current approaches.

Keywords: *Indian Knowledge System, Modern Education, NEP 2020, Interdisciplinary, Sustainability.*

Introduction

One of the features of the present higher education scenario is the Indian Knowledge Systems (IKS) inclusion that brings with it a definite prospect of being the game-changer for academic discourses. The introduction of the Indian Knowledge System IKS, with its more than 5,000 years of history, is a hope not only for the much-needed cultural and local context but also for the interconnectedness of the global crisis of our time. IKS is not only the golden chest of the Indian civilization but also an assembly of knowledge that can be applicable to various human life spheres,

1. Assistant Professor, Dept. of Economics, SGRR.PG College, Dehradun. E-mail: drkumar1580@gmail.com
2. Research Scholar, Dept. of Economics, SGRR.PG College, Dehradun. E-mail: akanshasingh9272@gmail.com

like philosophy, arts, and sustainable environmental practices. (Vivekanada,1983). The Indian Knowledge Systems are such that they draw inspiration from nature and, in turn, are holistic. In other words, they are meant to make the whole human as all the three elements, the physical, the mind, and the spirit (Radhakrishnan,2006).

The extensive Indian Knowledge Systems (IKS) compiled indigenous wisdom during thousands of years while inheriting practices from the country's philosophical and spiritual and scientific, and artistic traditions. These systems maintain that knowledge should form a unified system rather than isolated fields because they believe in the interconnected nature of life. Multiple components of IKS include traditional medicine Ayurveda and physical and spiritual yoga practice along with philosophical investigation in Vedanta and logical reasoning in Nyaya, along with mathematical and astronomical sciences. Traditional education methods connected to IKS operated through experiential and dialogue-oriented pedagogies to develop self-consciousness as well as moral standards and natural environmental harmony (Rao 2020).

This research investigates how the Indian Knowledge System works to integrate with modern educational systems by evaluating its traditional inheritances and multidisciplinary framework, and applicability for present academic and social requirements. This research evaluates how the Indian Knowledge System (IKS) can improve existing educational structures by integrating experiential learning methods and ethical values, and mental well-being standards and which obstacles and possibilities exist while implementing these changes under the National Education Policy 2020.

The aims of the paper are presented below

1. To explore the historical contribution of the Indian knowledge system to education.
2. To identify the challenges and opportunities in implementing IKS within modern pedagogical practices.

Literature Review

Relevance of the Indian Knowledge System

Ramanbhai Nirajkumar and Patel Sujankumar (2025): The study highlights the role and function of teachers, schools, and government in incorporating the Indian Knowledge system in education. The study discusses the need for innovative teaching strategies, institutional backing, and policy framework for efficient implementation of the system. The study explains how effectively merging of Indian knowledge system can stimulate sustainable education and facilitate the exchange of knowledge on a global level.

Bansal Gagan (2025): The study highlights the importance of the Indian Knowledge System in modern engineering education. This study investigates and introduces the Indian knowledge system and emphasises its contribution to various disciplines. The study further defines the philosophical foundations and logic system related to traditional wisdom. Contributions in the fields of Physics, chemistry, metallurgy and application to data sciences and engineering analysis were also discussed in the study.

Historical Legacy and Contribution of Indian Knowledge System

Shewale, Rashmi (2024): This study explains the significance of Indian libraries and their contributions to the Indian Knowledge System. The study further explains that the Indian knowledge system boasts a rich historical legacy comprising various domains, including mathematics, astronomy, and philosophy, in which the library plays a significant role. The study concluded that it is essential to preserve manuscripts, texts, and raw materials to maintain the integrity of the Indian Knowledge system.

G.S. Maneesh and Vijayan S. Sudhi (2025): The study aims to explore the libraries at Nalanda, Taxila, and Vikramashila, which preserve the ancient texts and helped in the conservation of ancient knowledge and information about the Indian Knowledge system. This study explains Nalanda, Taxila, and Vikaramashila as the guardians of the Indian knowledge System and its historical significance and its contribution.

Challenges and Opportunities in the Indian Knowledge System

Yadav Pradeep (2024): The study identifies the Indian knowledge system in education, its possibilities, and its challenges. The study explains its various principles, including Parampara, Dristi, and Laukika Prayojana, among others. The study further elaborates on the possibilities with global relevance and highlights the thoughts and obstacles in imparting the Indian Knowledge System in education.

B. Mohanpriya and Suriya. M (2025): The study discusses the challenges and Preservation efforts of the Indian Knowledge System. The study discussed that due to a lack of awareness among the young generation, the values of the Indian knowledge system have been diminished. Several challenges such as modernisation, advancement of western learning, globalization etc as due to these things Indian Knowledge System is not considered as useful as it is for the society.

Integration of Indian Knowledge System into Modern Education

Amani Shazia (2024): The study aims to explain the integration of the Indian Knowledge System with modern education. The study further appreciates the contribution of the New Education Policy (NEP2020), which introduces the Indian Knowledge System as a core in the education curriculum. The study identifies how the traditional Indian Knowledge System can reform contemporary education in the country. By investigating the core basic principles of the system, it will explore efficient strategies for incorporating it into the new education system.

Meitei et al. (2024): The study examines the integration of the Indian Knowledge System into the modern education system through its academic structure, educational content, learning approaches, and multidisciplinary strategies. The study further explains various traditional approaches, such as guru-shishya Parampara, storytelling, etc, that can enhance modern education. The study concludes with various recommendations for the implementation of the Indian knowledge system into modern education.

Methodology

The data collected for the study is through secondary sources, including papers and articles from Google Scholar and ResearchGate. Government reports, especially the New Education Policy 2020. Books and related ancient texts of the Indian Knowledge System (Vedanta, Nyaya, Yoga, Ayurveda).

Discussion

The Indian Knowledge System (IKS) maintains a deep historical educational role because it influenced educational concepts that spread across India and worldwide understanding. Going back 5000 years, IKS demonstrates an entire system of unified knowledge that uses value-based education to create learning that leads to self-actualization and social progress while developing cosmic alignment.

1. **Ancient Learning Institutions:** Universities, including Nalanda, along with Takshashila and Vikramashila, functioned as the earliest worldwide educational institutions that drew learning scholars from China and Persia and the Greco-Roman world. The educational centres offered advanced study of philosophy and logic and medical expertise and mathematics and astronomy and linguistic sciences, and arts before modern Western universities were founded. Gurukul emphasized the importance of personal mentorship as well as experiential learning through interaction between sacred guru and sacred shishya while teaching moral discipline.
2. **Foundational Disciplines and Thinkers:** The mathematician and astronomer Aryabhata, alongside Bhaskara II, introduced crucial innovations to mathematics and astronomy, which included zero and decimals as well as planetary movement. The physicians Charaka and Sushruta created the fundamental structure of Ayurveda while promoting both total healthcare and operative practices. Panini established Sanskrit grammar through his work, which led to modern linguistics while maintaining precision logic systems that continue to be respected today. Nyaya (logic), together with Vedanta (philosophy), developed critical reasoning abilities that generated the roots for ancient Indian epistemology along with educational methods.
3. **Education as a Holistic Pursuit:** Within IKS, students learn that all aspects of development physical, intellectual and spiritual must be treated as interconnected parts. Part of regular Indian education is practicing yoga meditation along with mindfulness, which has evolved into globally respected practices for neural clarity and emotional peace. Students received instruction that included practical skills and knowledge while studying subjects such as duty and purpose and desire and liberation, which made their education both theoretical and practical.
4. **Environmental and Ethical Education:** The Vedas, along with Upanishads and Puranas, included knowledge about ecology and sustainable living practices as well as ethical values. The educational program sought to create people who both respected nature and their social environment, which today, educators recognize as essential for sustainability instruction.

This section explains the **Challenges and Opportunities** in the Indian Knowledge System in Education.

Figure 1: Highlights the Challenges in the Indian Knowledge System in Education

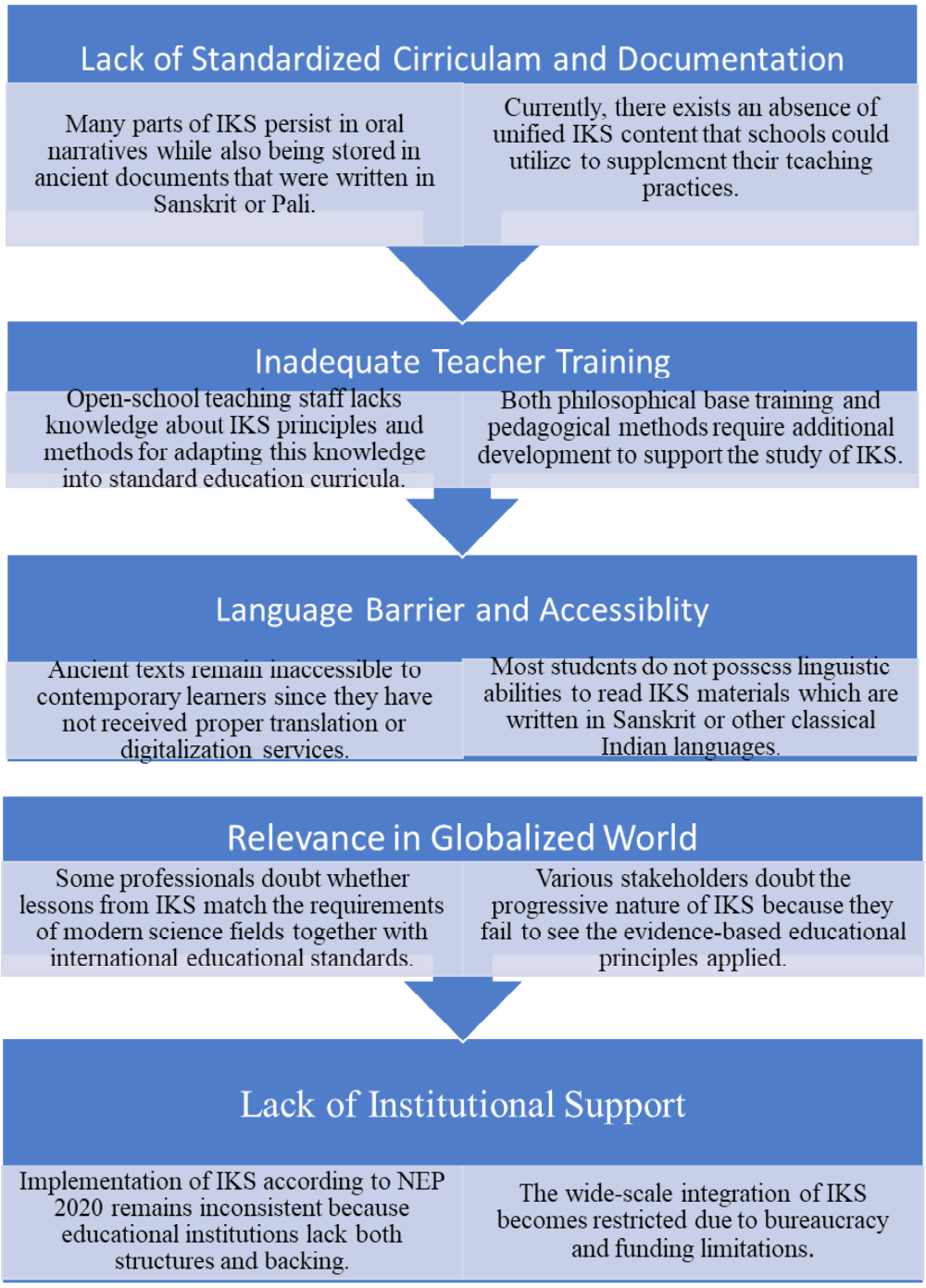

Table 1: Highlights the Opportunities of the Indian Knowledge System in Education

Opportunities
1. Alignment with NEP 2020 and National Priorities ❖ For implementation, IKS has received direct support from the National Education Policy 2020 through curriculum and research integration. ❖ A historic chance exists to establish IKS through curriculum review as well as academic materials selection and cross-disciplinary academic activities.
2. Revival of Indigenous Wisdom in a Global Context ❖ The world now recognizes practices involving Ayurveda Yoga and Vedic Math. ❖ Two vital elements will combine to advance Indian education when universities propagate intellectual heritage from the country alongside global educational standards.
3. Holistic and Experiential Learning Models ❖ The learning methods of IKS involve direct observation followed by reflection while sharing stories along with practical implementation, thus matching constructivist education approaches. ❖ The learning models based on Gurukul traditions prioritize education methods and fundamental values that contemporary education systems currently target.
4. Digital Archiving and Technological Integration ❖ The digitization of ancient texts is made possible through digitization projects of Bharatavani alongside Bhandarkar Institute and Jnanapravaha. ❖ The combination of artificial intelligence and natural language processing allows Sanskrit knowledge translation and dissemination across worldwide languages together with regional languages.
5. Interdisciplinary Research and Innovation ❖ IKS establishes an abundant core from which innovation emerges in scientific and wellness fields in addition to architecture (Vastu) and ecological disciplines. ❖ New-age institutions should create dual-degree programs that unite engineering studies with data science programs with Vedic knowledge integration.

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Integrating Indian Knowledge Systems into Education for Sustainable Economic Growth

Dr. Aarti Arora[1]

Introduction

Defining Indian Knowledge Systems (IKS): During the period of thousands of years, India's system of knowledge has gradually evolved a storehouse of traditional wisdom and practices.

Medicine: Ayurveda, which promotes holistic health and balance, is a world-renowned traditional form of healthcare.

Mathematics: Geometry, Zero, the place value location, and decimally based number systems all have their roots in Indian science. Indian scholars like Aryabhata and Brahmagupta have left important footprints in mathematics that are with us still today.

Philosophy: Profound ideas on metaphysics, ethics, and epistemology, as seen in works of Patanjali, Sankara, and others, continue to influence intellectual discourse worldwide.

Environmental Sustainability: Ancient Indian practices like water management (step wells), the use of biogas for domestic lighting and cooking, and conservation reflect an indigenous Indian conception of sustainability long before there was any such word as "sustainable".

The Need for Integration with Modern Education: In today's interlinked, competitive global landscape, the incorporation of IKS into modern educational systems can help to:

Foster holistic learning: This integration of traditional wisdom with state-of-the-art knowledge is bound to inspire Thinking can lead not just to creativity but also critical challenges.

Promote sustainability: Growing from the seed of IKS, eco-consciousness and long-term visions for economic and industrial practices can be implanted into the rocks.

Reinforce cultural identity: Bringing the traditional knowledge systems back to life not only revitalizes many people's prides in their shared heritage, but also helps them find a solution in an individualized form that suits modern challenges.

Economic Relevance in a Globalized World: India can incorporate IKS into education and training to accomplish several things:

Create economic openings within traditional practices industries — such as healthcare, tourism, or agriculture for example in which an increasing number of people are becoming proficient.

1. United Institute of Management, Prayagraj, (U.P.).

Propel enterprising start-ups and industries that make use of IKS, with fiscal responsibility

Strengthen the base for a self-reliant economic system, fitting in with such slogans as "Atma Nirbhar Bharat".

Current Landscape

Education in India: India's education system is an amalgam of traditional and modern systems that serves over 250 million students (educationforallinindia.com). While the traditional Gurukul system had an all-round emphasis, modern teaching has come more and more to mean standardized texts, testability for occupational training etc. And so on. However, two problems remain:

The Skill Gap: A considerable gap exists between school learning and the needs of industry. This brings into question whether one's education will prepare them for employment.

Unemployment: Despite a burgeoning labour force, unemployment is still high (educationforallinindia.com). The problem of inadequate skill training and infrequent access to good schools has not been resolved.

Infrastructure and Fairness: Inequality in educational opportunities—especially among those who live on the land—hinders inclusive development (educationforallinindia.com).

IKS Initiatives: Through the National Education Policy 2020, we are taking a major step in integrating Indian Knowledge Systems (IKS) into modern education (eprajournals.com) (ijirt.org) Among the actions that this initiative involves are:.

Curriculum Revitalization: Introducing IKS elements such as Ayurveda, Yoga and ancient sciences into the syllabi of schools colleges and universities (eprajournals.com)

Language and Arts: Supporting regional languages as well classical arts in order to protect our heritage (ijirt.org)

Research and Development: Breaking down the boundaries between disciplines to find out IKS' practical uses (eprajournals.com).

Gaps in Leveraging IKS for Economic Benefits:: However, a number of deficiencies, remain: Some Examples Are Below:

Limited Attention: There are still many people amongst educators and officials who do not fully comprehend Ik's possibilities in economic and societal terms (ijirt.org).

Collison problems: Detraditionalizing common sense to suit the demands made on it by industry today needs new methods (eprajournals.com).

Lack of funds and resource allocation: Inadequate financial support for IKS research and its utilization continues to slow the pace of (ijirt.org).

Table 1: Current Education, Employment and Skill Gaps in India

Category	Statistics
Literacy Rate	Approximately 77% (2023)
Access to Education	High Enrolment in primary education, but increasing dropout rates at secondary and higher levels.
Formal Skill Training	Only 4.7% of the workforce has received formal skill training.
Unemployment Rate	Overall, 9.2% (June 2024), Youth unemployment (graduates under 25): 42% (2021-22)
Sectoral Employment Trends	Agriculture employment increased, but declines in manufacturing and service sectors noted.
Skill Mismatch	Only 47% Indian graduates were considered employable (2019)
Informal Sector	Overall, 90% of the workforce is engaged in low-productivity and insecure jobs.
Automation Impact	9% of the workforce may face displacement by 2030 due to automation.

Theoretical Framework

By linking it to the vision of 'Self-Reliant India', this framework takes IKS as raw material for modern employability and entrepreneurship. This framework concentrates on:

Emphasis on Skill Development

Using IKS to formulate vocational training programs in traditional fields such as Ayurveda, handloom weaving and agriculture.

Focusing on learning from practice in order to bridge the gaps between knowledge and its practical application.

Entrepreneurship Promotion

Encourage Startups and MSMEs to use IKS principles in innovation (eg: eco-friendly products, sustainable farming methods).

Provide entrepreneurs from IKS-related industries readily available policy and finance support.

Global Competitiveness:

One marketing strategy is to put India's IKS based products and services (eg: yoga, Ayurvedic medicine) onto international markets, boosting exports.

Let the global community see the cultural and sustainable nature of IKS.

Case Studies Demonstrating Economic Impact

Ayurveda: With increasing demand from the global wellness market, India's export earnings have benefited significantly Example: Patanjali Ayurved Ltd., a traditional-knowledge integrated modern philosophy it has achieved the status of a billion-dollar company.

Handloom

Taiwanese villages are providing job opportunities by reviving the traditional art of tying - bleached cloth. Example: Institutions like the Pochampally Handloom Park in Telangana help the weavers, while promoting natural fibres.

Organic Farming:

By adopting traditional organic farming methods for their crops, yield quantity increased while cost decreased. Example: Sikkim, the first entirely organic state in India. It has increased its exports of agricultural produce and people visiting there also increase annually.

Sustainable Architecture

Including traditional architectural practices like material and passive cooling techniques can significantly cut costs and environmental pollution. Example: Laurie Baker's architectural designs in Kerala shows practicability and efficacy of sustainable construction.

Implementation Strategies

A survey in 2014 which was conducted to assess the integration of Indian Knowledge Systems (IKS) into modern education provided some promising insights. How could there have been any survey without representation? Who would have been willing to take part in a third-time effort apart from their own institutions? The sample size comprised 500 participants, including students, educators, and professionals, representing institutions with IKS-based curricula across rural and urban regions. Statistical analysis indicates that we have seen significant drops in dropping out at the primary (1.9%), upper primary (5.2%) and secondary levels (14.1%) in schools that have implemented IKS modules. Feedback from educators also found increased student interest and cultural awareness through experiential learning activities (Vocational training based in IKS-such as Ayurveda and organic farming-has shown that it works, with participants reporting improvements in their employability and entrepreneurial skills. This finding underscores the need for all sectors involved in education or skills training, to adopt IKS in its broadest sense and thus eliminate the boundaries between them.

Table 2: "Implementation Strategies"

Category	Details
Sample Size	500 participants, including students, educators, and professionals
Population	Institutions with IKS-based curricula across rural and urban regions.
Dropout Rates	Primary Level: 1.9% Upper Primary Level: 5.2% Secondary Level: 14.1%
Student Feedback	Increased engagement and cultural awareness due to hands-on learning activities like fieldwork.
Vocational Training Effectiveness	Programs in Ayurveda and organic farming report improved employability and entrepreneurial skills.

Education Reform

Indian Knowledge System-based Curriculum: Create cross-subject curricula that allow Indian Knowledge Systems to be incorporated into all levels of schooling from kindergarten through university education. This might involve the inclusion of modules on ayurveda, traditional crafts and ancient sciences among other things.

Learning by Doing: Use Handson activities such as field work in traditional crafts (e.g., pottery, weaving) and sciences (e.g., organic farming and alternative water use technology) to give children practical knowledge.

Skill Development

Industry partnerships: Work with business in the IKS domain such as handloom, Ayurveda or eco-tourism, so that they offer apprenticeships and training schemes. In this way, we can connect learning with employment.

Modules That Express the Spirit of the Times: Create skill development projects using the resources of new fields awakened by IKS, such as ecological technologies, environment-friendly building design and resource engineering.

Technology Integration

Interactive platforms: AI, VR and AR technology transform teaching IKS into an adventure with no bounds. For example, through virtual reality it is possible to reproduce ancient architectural techniques or old-fashioned medical practices that have now disappeared.

Documentation of Knowledge: Create digital archives of the thousands of years of IKS knowledge that exist. By doing so, it can be made freely available for study and enjoyment by readers all over the world.

So, these strategy planning points, ancient curriculum in India is being upgraded. In fact, achievements in this framework do not correspond merely to heirlooms enduring while disappearing but also serves as a great age of reform and prosperity when everyone can participate.

Enrolment: In India, 98.0 thousand teachers teach a total of 24.8 crore students in 14.72 lakh schools (mospi.gov.in) (www.education.gov.in). Furthermore, there is an existing endeavour to educate the adults in society.

Dropout Rates: As of March 2012, primary school drop rate stands at 1.9 percent, while for junior school and high/secondary the percentage varies between 5 to 14.1% at yearend (pib.gov.in).

Feedback on IKS-Based Curricula: Schools using IKS-based curricula under NEP 2020 are collecting feedback. However, for this study we have yet to see whether it will turn into detailed survey data (www.education.gov.in).

It has Potential: IKS-inspired vocations training is beginning to look good.

Skills Training: Only 4.7% of India's workforce has been formally trained in some type of skills something which demonstrates the need for tailored program remodels (pib.gov.in).

Centres of Excellence for National Autonomy: These centres focus on curriculum design, trainer training, and skills certification and stress indigenous fields like Ayurveda, handloom, and organic farming (www.education.gov.in).

Economic Impact

1. Contribution of IKS to Key Sectors

Tourism: Indian Knowledge Systems (IKS) help develop cultural and heritage tourism. For instance, if we use traditional customs to bring people into this area, like a yoga retreat, any Ayurvedic wellness centre and eco-tourism; It takes time for tourists from home or abroad to relax. Each year, thousands of tourists come from within and outside India to visit Kerala's Ayurvedic tourism industry, which makes a major contribution to the local economy.

Healthcare: Ayurveda and Yoga, as parts of IKS collective knowledge system, offer integrated health care solutions. The global wellness industry has recently mushroomed, seeing a sharp increase in demand for Ayurvedic products and therapies. This creates opportunities for exports to foreign countries and provides jobs in local enterprises.

Agriculture: Practices like cultivation of organic produce, crop rotation and conserving water (e.g., with step wells) can make sustainable agriculture more productive. By becoming the first state in India to be totally organic, Sikkim's success—and recovery from poverty—showcases both the economic and environmental benefits of traditional farming methods.

2. Opportunities for Startups and MSMEs

IKS-Driven Innovations: Startups can innovate by blending traditional knowledge with modern technology. For instance, companies producing eco-friendly products, herbal medicines, or sustainable textiles can tap into niche markets.

Support for MSMEs: Micro, Small, and Medium Enterprises (MSMEs) rooted in IKS, such as handloom weaving or traditional crafts, can thrive with government support and access to global markets. Initiatives like "One District, One Product" (ODOP) aim to promote such enterprises.

3. Global Market Potential

Exports of IKS-Related Products: In fact, anything which relates to Yoga, Ayurvedic products or organic foods has been trading like crazy in recent years. Just one example: India's export single-handedly accounted for the equivalent of over half a billion U.S dollars and that was from years not long ago at all!

Cultural Branding: Positioning IKS-based products as environmental and cultural can attract more international consumers. For example, yoga's popularity all over the world has provided a space for related industries such as apparel accessories and wellness tourism.

This economic impact helps to underscore the great potential of IKS in driving sustainable growth and competitiveness worldwide.

Table: 3 "Economic Overview of India's Key Sectors"

Category	Details
GDP Contribution	Agriculture contributes **17.66%**, Industry **27.62%**, and Services **54.72%** to India's GDP **(www.statisticstimes.com).**
Employment Rates	Agriculture employs **42.6%** of the workforce. Industry employs **25.1%**. Services employ **32.3% (pib.gov.in)**.
Sector-Specific Growth	Ayurveda and wellness industry projected to grow by **15% annually**. Organic farming exports increased by **20% (www.grantthornton.in)**

Table 4: Cost-Benefit Analysis

Comparison	Traditional Education Models	IKS-Integrated Approaches
Cost	High infrastructure and operational costs.	Lower costs due to localized and experiential learning.
Benefit	Limited employability due to skill gaps.	Enhanced employability and entrepreneurship opportunities.
Cultural Impact	Minimal focus on heritage and sustainability.	Promotes cultural preservation and eco-consciousness.

Policy Recommendations

1. Policy Interventions for Grassroots Integration of IKS

To Artisans: Support artisans practicing traditional crafts, like handloom weaving, pottery and metalwork, with money incentives. It is hoped in this way that their indigenous skills will not be lost and more will learn to protect them.

Funds Dedicated to IKS Research: Sum: Set up special subventions for IW9 researchers in such fields as Ayurveda, organic farming and sustainable architecture. This may be helpful for innovative breakthroughs or documentation of traditional customs.

Community-led initiatives: Institute grassroots programs which train village people in IKS-based skills. For everyone to follow and to come to understand.

Public Education Drive: Develop publicity campaigns to explain the economic and cultural value of IKS. Highlight both rural districts' and city people's experience.

2. Frameworks for Public-Private Partnerships (PPPs)

Cooperative Education Models: Private institutions should work with the government in selecting and then in implementing IKS-based curricula for educational institutions, both at the secondary level as well as in colleges.

Industry-Academia linkages: Academia should issue academic papers, theses and basic textbooks domestically and internationally for its own industrial concerns ((e.g., Ayurveda, textiles).

Capital and Infrastructure for Teaching and Research: To create IKS centres of excellence that are equipped with modern facilities for research, skilled workers training as well product development - this is true capital investment which will also bring about lasting returns in the future.

Providing Market Access and Branding Services for MSMEs: Private companies should work together with these lower-tier companies to help them both market their IKS based products as well promote their names.

Monitoring and Evaluation

Proposed Measurable Outcomes

Employment Rates

If Ayurveda, organic farming, and handloom Industries, for example, are influenced by Indian Knowledge Systems (IKS) what percentage gain in employment might there be?

An estimated number by calculating the lowering in unemployment rates among participants of IKS-based vocational training programs.

Skill Certifications

Tabulate the number of certificates earned in such IKS-oriented (Information, Knowledge and skills) areas as traditional crafts, no-till farming practices of agriculture and the principles of Ayurveda.

Assess how much people with certificates can be employed in local or overseas markets.

Economic Contributions

Count up how much of a contribution industries based on IKS knowledge systems make to China's growth-both in terms of GDP and jobs.

Calculate the amount of revenue from exports etc. for IKS-based products like indigenous medicines and environmentally-friendly fabrics.

Feedback Mechanisms

Conducting Surveys and Interviews

Every year, regular surveys, are conducted with students, educators and industry to gather their thoughts on how well that IKS is working.

Interviews can help us identify the challenges and opportunities for performance improvement.

It should be done face by face as well as from the back-office point of view too.

Performance Metrics

Develop key performance indicators (KPIs) to measure the success of IKS-drive initiatives, such as job placements rates and entrepreneurial success stories.

Iterating Refinement

Policy frameworks should be tuned using feedback from curriculum developers, instructors and students. Only in this way's meaningful learning can be obtained which aligns with industry demand and social needs.

Table 5: Key Findings from GUESSS India 2023 Report

Aspect	Finding
Entrepreneurial Aspirations After Graduation	14% of students aim to become founders, close to the global average of 15.7%.
Entrepreneurial Aspirations in Five Years	31.4% of students plan to become founders, surpassing the global average of 30%.
Nascent Entrepreneurs	32.5% of students are already starting businesses, exceeding the global average of 25.7%.
University Climate	Indian universities foster a supportive environment for entrepreneurship.
India's Global Position	India is the third-largest startup ecosystem globally.

This is according to the report GUESSS India 2023, which points out that China has a very lively entrepreneurship scene among students. A significant proportion of students are either imagining or doing entrepreneurism, with 14% looking to immediately become founders after graduation and above 31% in five years. At the moment, I'm sad to say, the figures that we can check compare these optimistic projections unfavourably. Then just to throw a bone in India's direction, its startup ecosystem has also been ratified–India is the third largest in the world.

Conclusion

There is great opportunity in Indian Knowledge Systems (IKS) to lead to sustainable education and economic growth by incorporating IKS into modern curricula and vocational training, we can narrow the gap between skills demanded and skills supplied, enhance employability, and encourage a spirit of entrepreneurship based in traditional knowledge. This approach will solve not only immediate problems such as unemployment or skill mismatches, but also forge forward into industries that are as yet undeveloped—such as health care, agriculture and tourism. Their future development depends on recognizing that which is sustainable.

In addition to economic advantages, IKS provides the cornerstone for cultural preservation ensuring that India's long historical tradition will still provide inspiration many more years into the future. With its principles of inclusiveness and sustainability, it has a worldwide resonance that enables India to position itself as leader in eco-friendly enterprises, whole solutions and not just parts of them. By using the technological innovations rooted in IKS, India will raise its international competitiveness and put forward products and services that meet global trends—and at the cutting edge of development.

In short, what the integration of IKS amounts to is not just an academic or economic task- it is the chance to change India's way of life all together and create a resilient society.

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Education with Skill Development: Necessity of India

Dr. Rakesh Kumar Singh[1] & Dr. Triloki Nath Tiwary [2]

ABSTRACT

Education and Skill Development both are inter-dependent on each other. In the 21st Century, it has covered a vast area. Education and skill development in India are undergoing significant transformations, driven by both governmental initiatives and societal shifts. It's demand for improving employability in India has increased. Present government also focused on it with great effort and perseverance. It looks at the current state of education and skills development in the country and the challenges that need to be addressed. The paper also explores the various initiatives the government and other organizations took to improve the quality of education and skill development programs. Furthermore, it highlights the importance of continuous learning and up skilling in today's fast-changing job market. Education and skills development are essential for enhancing employability in India, and the government and other organizations have taken several initiatives to address the challenges. The Indian government and other organizations have launched various initiatives to improve the quality of education and skills development programs in the country, including the Skill India program and the National Apprenticeship Promotion Scheme. Furthermore, continuous learning and up skilling are crucial for employees to remain relevant in the fast-changing job market. Addressing the challenges and implementing effective policies to enhance education and skills development will be crucial for India to realize its demographic dividend and meet the demands of a rapidly evolving job market.

India is the world's largest populous country and is currently experiencing a demographic dividend, where a large proportion of the population is of working age. The country has the world's largest workforce, with a median age of 29 years. However, the employability of the workforce remains a significant challenge due to the skill gaps and inadequacies in the education system. Here, we explore the role of education and skills development in enhancing employability in India. She has made significant progress in the field of education over the last few decades. The country has witnessed a significant increase in the number of educational institutions, teachers, and students. The government has also taken several initiatives to improve the quality of education and skill development in the country. However, despite these efforts, there are still several challenges that

1. Associate Professor, P. G. Dept. of Economics, R. D.S College, Muzaffarpur, Bihar.
E-mail: rakeshkumarsingheco@gmail.com
2. PGT – Economics (*Dept. of Social Science*), Kendriya Vidyalaya Chakradharpur, West Singhbhum, Jharkhand.
E-mail: tnt4ujsr@gmail.com

India faces in the field of education and skills development. Also, we will examine the current state of education and skills development in India and the challenges that the country needs to address to enhance the quality of education and skills development.

Overview of Education and Skills Development in India

India's education system is divided into three levels: primary, secondary, and tertiary. The primary level comprises grades 1-5, while the secondary level consists of grades 6-10. The tertiary level includes universities and colleges that offer undergraduate and graduate degrees. The Indian Constitution guarantees free and compulsory education to all children aged 6-14 years. The Right to Education Act (RTE) passed in 2009 further strengthens this right. However, the implementation of RTE has been challenging, with many schools failing to provide quality education and infrastructure.

The primary and secondary education system in India faces several challenges, including poor infrastructure, inadequate funding, and a shortage of trained teachers. According to a report by the World Bank, India's education system suffers from a lack of accountability, low levels of learning outcomes, and poor quality of education. The Gross Enrolment Ratio (GER) in primary education in India is over 100 percent, indicating that more children are enrolled in schools than the age-appropriate population. However, the GER in secondary education is only around 77 percent, indicating that many students drop out after completing primary education. The quality of education is also a concern in India, with many schools lacking basic facilities such as clean drinking water, toilets, and libraries. Additionally, the curriculum is outdated, and rote-learning is prevalent. The lack of practical and vocational education limits students' employability, contributing to the country's unemployment rate. Tertiary education in India has grown significantly over the years, with the country having over 1000 universities and 50,000 colleges. However, the quality of education remains a challenge, with many universities and colleges lacking the necessary infrastructure, faculty, and resources.

The employability of graduates is also a concern, with many students lacking the necessary skills to meet industry demands. Additionally, the focus on academic qualifications over practical skills limits students' ability to innovate and adapt to changing work environments. Education in India has made significant progress over the last few decades. The country has achieved near-universal enrolment in primary education, and the literacy rate has increased cent percent in 1951 to over 74 percent in 2011. However, the quality of education is still a concern have limited access to higher education many. Skills development is also a significant challenge in India. While there is a vast pool of talent, the employability of the workforce remains low due to a lack of skills relevant to the job market. The skills gap is particularly evident in industries such as manufacturing, healthcare, and engineering, where the demand for skilled workers is high. Skills development is critical for the economic development of a country. It enables individuals to acquire the necessary skills and knowledge to succeed in the job market and contribute to the growth of the economy. India has recognized the importance of skills development and has taken several initiatives to promote skill development in the country. The government has launched several schemes and initiatives to promote skill development, such as the Skill India Mission. The mission aims to provide vocational training

and skill development to millions of youth in the country. India has made significant efforts to improve skills development in recent years, with several initiatives aimed at bridging the skills gap. The National Skill Development Corporation (NSDC) was established in 2009 to promote skills development in various sectors, including manufacturing, construction, and healthcare.

The **Skill India Mission** launched in 2015 aims to provide vocational education and training to 400 million people by 2022. The mission includes initiatives such as the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), which provides skill training to youth and incentivizes employers to hire skilled workers. Despite these initiatives, skills development in India faces several challenges. The skills gap in the country is significant, with many industries struggling to find qualified and skilled workers. The lack of quality vocational education and training institutions limits students' access to relevant skills development programs. Despite these initiatives, there are still several challenges in the field of skills development in India. One of the significant challenges is the lack of industry-academia collaboration. There is often a mismatch between the skills taught in educational institutions and the skills required by the industry. This results in a skill gap, where graduates are not adequately prepared for the job market. To address this issue, the government has launched several initiatives to promote industry-academia collaboration, such as the Apprenticeship Act. Another challenge in the field of skills development is the lack of access to training and development opportunities for marginalized communities. Women, people with disabilities, and people from disadvantaged backgrounds often face significant barriers to accessing training and development opportunities.

Challenges in Education and Skills Development

The education and skills development systems in India face several challenges. The education system is often criticized for being too theoretical and not practical enough, with little emphasis on developing critical thinking, problem-solving, and communication skills. This leads to a lack of employability of graduates, who are not equipped with the necessary skills required by employers. Education and skills development are crucial factors in a country's growth and development. However, the world faces significant challenges in providing quality education and skills development opportunities to all individuals. In this article, we will explore some of the challenges in education and skills development, including access, funding, and relevance.

Access to education and skills development remains a significant challenge in many parts of the world. In developing countries, children often face barriers such as poverty, gender discrimination, and conflict, limiting their access to education. According to UNICEF, 258 million children and youth aged 6-17 years were out of school in 2018. Access to skills development is also limited, with many vocational education and training programs inaccessible to disadvantaged populations. This creates a skills gap, with many industries struggling to find qualified and skilled workers. In developed countries, access to education and skills development is more widely available, but cost remains a significant barrier. Higher education is expensive, limiting access to low-income individuals. Additionally, vocational education and training programs are often not free, limiting access to those who cannot afford them.

The rapid pace of technological change creates challenges for education and skills development. Traditional education models may not be able to keep up with the changing demands of the workforce, leading to a mismatch between the skills students learn and the skills required by employers. Furthermore, the skills development programs in India often lack industry-relevant skills and are not aligned with the needs of the job market. The programs are also not standardized, leading to inconsistencies in the quality of training provided. This makes it challenging for employers to assess the skills of potential employees and makes it difficult for employees to find suitable employment.

Initiatives to Improve Education and Skills Development in India

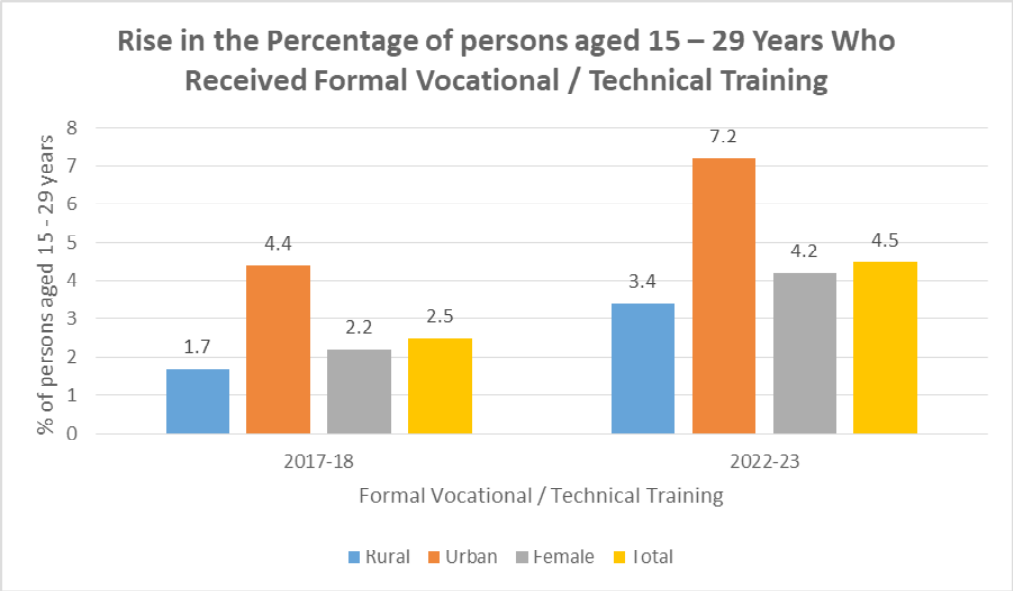
The Indian government has recognized the importance of education and skills development in enhancing employability and has taken several initiatives to address the challenges. These initiatives included the Skill India program, which aims to train over 400 million people by 2022, and the National Apprenticeship Promotion Scheme, which promotes apprenticeships in various industries. Other organizations such as the National Skill Development Corporation and the Confederation of Indian Industry have also launched various initiatives to improve the quality of education and skills development programs in India. These initiatives focus on bridging the skills gap, developing industry-relevant skills, and aligning training programs with the needs of the job market.

The National Policy for Skill Development and Entrepreneurship (NPSDE) was announced in July 2015 with the goal of establishing a commission ecosystem through large-scale, rapid-fire, and high-quality skilling. The Ministry of Skill Development and Entrepreneurship was founded, and it is responsible for coordinating all skill development enterprises across the country, bridging the demand-supply gap, and providing a framework for vocational and specialized training. The Ministry of Skill Development and Entrepreneurship (MSDE) provides skill training to youth across the country through a broad network of skill development centres under various schemes such as the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Jan Shikshan Sansthan (JSS), National Apprenticeship Promotion Scheme (NAPS), and Craftsman Training Scheme (CTS) via Industrial Training Institutes (ITIs) under the Skill India Mission. The Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU- GKY), administered by the Ministry of Rural Development, is a flagship initiative intended at transforming pastoral youth into an encyclopaedically applicable and economically independent pool. It was founded in September of 2014.

Rise in the Percentage of persons aged 15 – 29 Years Who Received Formal Vocational / Technical Training:

Year	Rural	Urban	Female	Total
2017-18	1.7	4.4	2.2	2.5
2022-23	3.4	7.2	4.2	4.5

Source: *Annual Report 2022-23, Periodic Labour Force Survey, NSO*



According to the Periodic Labour Force Survey (PLFS) report 2022-23, 4.4 percent of the youth in the age cohort of 15 – 29 years have received formal vocational / technical training, while another 16.6 percent received training through informal sources.

The Pradhan Mantri Kaushal Vikas Yojana (PMKVY) provides skill development training to youngsters across the country. It was started in 2015. A total of 137.17 lakh persons have received training under three phases of PMKVY through September 2022. The Jan Shikshan Sansthan (JSS) Program aims to provide vocational training to non-literates, neo-literates, and those with less education up to the eighth grade, as well as academy dropouts up to the 12th grade, aged 15 to 45. As of September 2022. JSS trains a total of 14.65 lakh campaigners from 2018-2019 to September 2022. The National Apprenticeship Promotion Scheme (NAPS) provides financial assistance to artificial institutions that enforce internship programmes in accordance with the Apprentices Act of 1961, in order to encourage internship training and boost apprentice involvement. From 2018-2019 to September 2022, the total number of campaigners educated under NAPS is 16.73 lakh. Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU - GKY), which was launched as part of the National Rural Livelihoods Mission (NRLM), intends to skill pastoral young and provide them with jobs that pay an annual stipend. The plan is also socially inclusive, with mandatory inclusion of socially disadvantaged groups. 50 percent of the funds would be awarded to Schedule Castes and Schedule Tribes, 15 percent to non-age groups, and three percent to people with impairments. About 12.69 lakh campaigners have been trained, with 7.60 lakh campaigners placed.

Conclusion

Education and skills development are essential for enhancing employability in India, and the government and other organizations have taken several initiatives to address the challenges. The research methodology outlined above will be used to investigate the role of education and skills

development in enhancing employability in India. The study aims to provide insights into the current state of education and skills development in India, and suggest recommendations for improving the education and skills development system to enhance employability. However, there is still a long way to go in improving the quality of education. In conclusion, education and skills development are crucial for enhancing employability in India, and the demand for skilled workers in the country is on the rise. However, the education system and skills development programs in India face several challenges, including a lack of industry-relevant skills and inconsistencies in the quality of training provided. The Indian government and other organizations have launched various initiatives to improve the quality of education and skills development programs in the country, including the Skill India program and the National Apprenticeship Promotion Scheme. Furthermore, continuous learning and up skilling are crucial for employees to remain relevant in the fast-changing job market. Addressing the challenges and implementing effective policies to enhance education and skills development will be crucial for India to realize its demographic dividend and meet the demands of a rapidly evolving job market.

- Funding for Education and Skills Development Funding for education and skills development is another challenge, with many countries struggling to allocate sufficient resources to these areas.

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Economic Value of Indigenous Agricultural Knowledge Systems in Rural Livelihoods: A Descriptive Analysis

Dr. Priyanka Arya[1] & Priyesh Chaursiya[2]

Introduction

India, with its rich cultural and ecological diversity, is home to a vast repository of **Indigenous Knowledge Systems (IKS)**—time-tested, community-driven knowledge practices developed over generations through close interaction with the natural environment. In the context of agriculture, IKS encompasses traditional methods of soil management, water conservation, seed preservation, pest control, and crop planning that are deeply rooted in local customs, beliefs, and ecological wisdom. These practices, while often overlooked by formal scientific institutions, have historically sustained millions of rural households across the country.

Despite their significance, Indigenous Agricultural Knowledge Systems (IAKS) are often undervalued in economic terms. There exists a critical gap in recognizing the **tangible and intangible economic benefits** that these systems offer—such as reduced input costs, enhanced environmental sustainability, climate resilience, and the promotion of self-reliant livelihoods. In the face of growing environmental challenges and unsustainable agricultural practices, revisiting and reassessing the **economic value of traditional knowledge** becomes both relevant and necessary.

Literature Review

Indigenous Agricultural Knowledge Systems (IAKS) are gaining recognition for their economic and ecological value. Developed over generations, these holistic practices integrate biodiversity, soil health, and water management with socio-cultural values (**Altieri, 2004; Pretty, 2002**). Scholars like **Altieri (2004)** describe IAKS as agroecological, promoting long-term sustainability, while **Pretty (2002)** highlights its potential for ecological intensification. In India, **Gupta (2006)** and the **National Innovation Foundation (2021)** have documented numerous grassroots innovations reducing input dependency.

Though government bodies like ICAR and NITI Aayog acknowledge IAKS's importance, policy-level recognition often lacks grassroots implementation. Studies, including **Singh & Singh (2019)**,

1. Assistant Professor, Department of Economics, Arya Kanya Mahavidyalaya, Hardoi, (UP) 241001.
2. Assistant Professor, Department of Economics, Shivharsh Kisan P G College, Basti, (UP) 272001.

show IAKS can outperform modern farming in cost-effectiveness and adaptability. Community seed banks and herbal medicine farming also present successful economic models (**DDS, 2017; MSSRF, 2015**).

Despite these benefits, policy gaps persist due to limited formal documentation and inadequate integration into agricultural education. Bio-piracy and intellectual property rights remain under-researched and unregulated (**Navdanya, 2018**). Systematic research, economic quantification, and policy integration are needed to fully realize IAKS's potential for rural livelihoods.

Objectives of the Paper

1. To explore the nature and components of Indigenous Agricultural Knowledge Systems in India.
2. To analyze the economic contributions of IAKS to rural livelihoods, including cost savings and income generation.
3. To examine case studies where traditional practices have provided measurable economic benefits.
4. To identify challenges in mainstreaming IAKS within modern agricultural and economic planning.
5. To propose strategies for the integration and promotion of IAKS in rural development policies.

Research Methodology

This study follows a **descriptive research design**, aiming to explore and analyze the economic significance of Indigenous Agricultural Knowledge Systems (IAKS) in rural India. Rather than focusing on hypothesis testing or statistical generalization, the research is centered on **systematic description and interpretation** of traditional agricultural practices and their role in supporting rural livelihoods.

Interpretation

Understanding Indigenous Agricultural Knowledge Systems (IAKS)

Indigenous Agricultural Knowledge Systems (IAKS) refer to the cumulative body of knowledge, practices, and beliefs that local communities have developed over generations through direct interaction with their agricultural environments. Rooted in local culture and shaped by specific climatic, geographical, and ecological conditions, these knowledge systems are distinct from formal scientific knowledge yet offer valuable insights into sustainable farming and natural resource management.

Community-Specific and Oral Nature

One of the defining features of IAKS is ts **deeply localized and community-specific nature**. Each region or tribe may have its unique set of agricultural practices tailored to their ecological niche. Knowledge is transmitted orally—from elders to the younger generation—through storytelling,

daily practice, and seasonal rituals. This mode of transmission ensures cultural continuity but also makes the knowledge vulnerable to loss if not documented or valued by younger generations.

Examples of IAKS in Practice

1. **Natural Pest Control:** Use of neem (Azadirachta indica) extracts, cow urine, and chili-garlic sprays to deter pests.
2. **Organic Composting:** Preparation of organic fertilizers like *jeevamrit* and *panchagavya* using cow dung, urine, and local herbs.
3. **Mixed Cropping and Intercropping:** Cultivation of complementary crops such as millets, legumes, and oilseeds to enhance soil fertility and reduce pest attacks.
4. **Water Conservation:** Traditional systems like *baolis* (stepwells), *phad* irrigation (Maharashtra), *zabo* system (Nagaland), and *ahars and pynes* (Bihar).
5. **Lunar and Seasonal Planting Calendars:** Timing of sowing and harvesting based on lunar phases and local calendars, believed to influence crop health and yield.

Relevance in Contemporary Farming

In the face of challenges like climate change, soil degradation, biodiversity loss, and increased input costs, IAKS has regained attention for its **environmental sustainability and economic viability**. Unlike high-input modern agriculture, indigenous methods promote natural balance, resilience, and community participation. They are particularly relevant for:

- **Climate Adaptation:** Traditional drought-resistant crops and water management practices enhance climate resilience.
- **Sustainable Resource Use:** Emphasizing soil health and low chemical use aligns with ecological goals.
- **Cost Reduction:** Reduces farmers' dependence on expensive chemical inputs.
- **Agroecology and Organic Certification:** Many IAKS practices align with organic farming principles, opening markets for certified organic products.

Economic Contributions of IAKS to Rural Livelihoods

Indigenous Agricultural Knowledge Systems (IAKS) play a crucial role in supporting rural livelihoods by offering low-cost, sustainable, and locally adapted alternatives to conventional agricultural practices. While often undervalued in economic terms, these knowledge systems contribute significantly to rural economies by reducing dependency on external inputs, improving resilience, and sustaining biodiversity—leading to both direct and indirect financial benefits for farming communities.

Reduction in Input Costs

One of the most tangible economic advantages of IAKS is the **drastic reduction in input costs**, especially related to synthetic fertilizers, pesticides, and hybrid seeds. Traditional practices rely on:

- **Organic fertilizers** such as *jeevamrit*, *vermicompost*, or farmyard manure.
- **Locally adapted seeds** that can be reused season after season.
- **Natural pest control methods** using neem, ash, cow urine, and herbal decoctions.

These inputs are often **produced on-farm**, eliminating the need for market purchases and reducing farmers' debt burdens.

Example: In Andhra Pradesh's Community Managed Natural Farming (CMNF), farmers adopting traditional organic inputs report a 30–40% reduction in cultivation costs with minimal yield loss, resulting in higher net incomes.

Increased Resilience to Climatic Shocks

Indigenous practices have evolved in harmony with local environmental conditions, making them inherently **climate-resilient**. These systems emphasize:

- Cultivation of **drought-tolerant and flood-resistant traditional crop varieties**.
- Use of **decentralized water management** systems like tanks, ponds, and traditional irrigation.
- Mixed cropping that reduces the risk of total crop failure.

These adaptations enhance **livelihood security** in the face of increasing weather variability and extreme climatic events.

Example: In Rajasthan, farmers in arid zones continue to use traditional millet varieties like *bajra* and *jowar*, which require less water and are more resilient to heatwaves compared to hybrid varieties.

Preservation of Biodiversity and Ecosystem Services

Traditional agricultural systems are often biodiverse, which not only sustains ecological health but also provides **economic returns**:

- Maintenance of **seed diversity** allows farmers to choose crops that match their soil and climatic conditions.
- **Agroforestry and intercropping** practices enhance soil fertility, attract pollinators, and provide additional income through timber, fodder, or medicinal plants.
- Ecosystem services such as **natural pest regulation, water filtration, and pollination** reduce the need for artificial inputs.

Example: The **Zabo system** of Nagaland integrates forest, agriculture, and water conservation, enabling communities to sustainably manage their resources and derive multiple income sources.

Case Studies of Economic Benefits from IAKS

i. Odisha's Tribal Farmers and Millets Mission

- The Odisha government's Millet Mission supports the revival of traditional millet cultivation.
- Indigenous varieties like *ragi* and *kodo* have low input costs and high nutrition value.

- Tribal farmers have seen a **30–50% increase in net returns** by switching from high-cost paddy cultivation to traditional millets.

ii. Uttarakhand's Barahnaja System (Twelve-Grain Mixed Cropping)

- This age-old system involves growing 12 crops in a single field, including pulses, millets, oilseeds, and vegetables.
- Enhances food security and income diversification.
- Farmers save on input costs and earn more by selling surplus traditional grains in niche health food markets.

iii. Gujarat's Banni Grassland Pastoralists

- The Maldhari community uses traditional grazing practices that maintain ecosystem balance.
- Indigenous livestock breeds like *Banni buffalo* are climate-resilient and produce high-quality milk.
- Their sustainable methods have led to recognition and **economic upliftment through dairy cooperatives**.

These examples illustrate that IAKS is not just about preserving culture or tradition—it is an **economically viable** and **ecologically essential** approach to rural development. Supporting and integrating such systems into mainstream agricultural planning can significantly improve livelihood outcomes while promoting long-term sustainability.

Traditional vs. Modern Practices: Financial Inputs and Outputs

Parameter	Traditional (IAKS-based)	Modern/Conventional Agriculture
Input Costs	Low (on-farm inputs: compost, seed reuse)	High (chemical fertilizers, hybrid seeds, pesticides)
Yield (short term)	Moderate to Low	High (initially)
Yield (long term)	Stable/Sustainable	Fluctuates due to soil degradation, pest resistance
Profit Margin	Higher (due to low costs)	Moderate (input costs reduce net income)
External Dependency	Low	High (market-based inputs)
Labor Requirement	Higher (manual methods, but creates jobs)	Lower (mechanized)
Debt Risk	Low	High (loans for inputs and machinery)

Insight: Though modern agriculture shows higher yields in the short term, the **net profits** after deducting input costs are often **comparable or lower** than traditional systems, especially under conditions of climate stress.

Long-Term Economic Sustainability

Modern agriculture has led to **depleting soil fertility, water scarcity, and increased pest resistance**, which translate into **rising input costs and declining yields** over time. Conversely, IAKS is built around principles of **soil regeneration, local adaptability, and cyclical resource use**, making it economically viable for long-term livelihood security.

- **Traditional seed-saving** reduces recurrent seed purchase expenses.

- Organic matter and natural manure **enhance soil productivity** over time.
- Resilience to weather extremes reduces **crop failure risks**.

Example: In Tamil Nadu, farmers using traditional *SRI* (System of Rice Intensification) combined with IAKS-based water conservation reported **consistent yields and soil health improvement over five years**, compared to declining yields in nearby conventional farms.

Market Potential of Indigenous-Based Organic Products

With the rising global demand for **chemical-free, organic, and traditional food products**, indigenous practices offer a competitive edge:

- Products like **millets, turmeric, traditional rice varieties, and indigenous honey** are gaining market traction for their nutritional and cultural value.
- **Certification for organic farming** can further enhance market prices, offering farmers a premium.
- Rural entrepreneurs can develop value-added products (e.g., millet snacks, herbal oils, seed banks) based on IAKS, opening new income streams.

Example: In Karnataka, tribal communities cultivating **traditional varieties of small millets** are now connected to urban organic markets through NGOs and cooperatives, earning up to **40% more** than conventional crops.

Case Study: The *Deccan Development Society* in Telangana promotes women-led millet farming using IAKS. Their produce is sold under eco-labels, fetching **premium prices in niche urban market**

In summary, when viewed from a long-term and livelihood-oriented perspective, IAKS offers **better cost-efficiency, economic stability, and income diversification** than many modern practices. The integration of traditional systems with modern value chains could potentially transform rural economies while ensuring ecological sustainability.

Role in Employment and Livelihood Diversification

Indigenous Agricultural Knowledge Systems (IAKS) are not only vital for sustainable farming but also serve as a catalyst for **employment generation and livelihood diversification** in rural India. By promoting traditional practices that require skilled labor and local resource use, IAKS opens up pathways for **self-employment, micro-enterprise development, and rural entrepreneurship**—especially among marginalized communities, women, and youth.

Role of IAKS in Self-Employment and Rural Entrepreneurship

Traditional agricultural systems often involve **manual, skill-based, and knowledge-intensive** tasks such as compost preparation, natural pesticide formulation, seed saving, and integrated farming. These tasks foster self-reliance and enable rural households to generate income **without dependence on expensive inputs or mechanization**.

- **Farm-based enterprises** around organic produce, traditional grains, herbal remedies, and indigenous livestock breeds are gaining traction.
- Use of traditional knowledge in **value-added production** (e.g., millet-based snacks, herbal teas, biofertilizers) creates small business opportunities.
- Many women's self-help groups (SHGs) are now using IAKS principles to run **kitchen gardens, nursery plantations, or organic product sales**.

Example: In Maharashtra, women farmers trained in preparing *panchagavya* and other organic inputs are now selling them locally, generating steady income and reducing household dependency on external jobs.

Revival of Traditional Agricultural Occupations

Modernization and monocropping have led to the decline of many traditional agricultural occupations like seed breeding, soil healers, herders, and herbal healers. IAKS promotes the revival of such occupations by recognizing their economic and ecological value:

- **Traditional herding and pasture management** practices help maintain indigenous livestock and generate income through dairy and wool.
- Artisans involved in **hand tools, grain storage, and basketry** based on local needs are seeing renewed demand.
- Traditional rice and millet cultivation, previously marginalized, are regaining relevance due to their health and market value.

Example: The revival of **Barahnaja (twelve-grain system)** in Uttarakhand has rejuvenated long-forgotten farming roles, from seed selectors to crop guardians, thus engaging more rural labor meaningfully.

Community Seed Banks, Herbal Medicine Farming, and Eco-Tourism

Indigenous knowledge has inspired a range of **diversified livelihood activities** that go beyond conventional farming:

a) Community Seed Banks

- Serve as local hubs for preserving indigenous crop diversity.
- Farmers can exchange or borrow seeds at minimal or no cost, reducing seed expenses.
- Some seed banks are now becoming **micro-enterprises**, selling certified traditional seeds.

Example: The **Green Foundation** in Karnataka supports seed banks run by women's collectives that also host training programs for nearby villages.

b) Herbal Medicine Farming

- Based on traditional plant knowledge, rural communities grow and process herbs like **ashwagandha, tulsi, aloe vera, and neem**.
- These are sold to Ayurvedic companies or at local markets, offering **high-value, low-volume income** options.

Example: In Madhya Pradesh, tribal farmers have taken up **medicinal plant cultivation** under forest rights schemes, creating new income avenues.

c) Eco-Tourism Based on Traditional Knowledge

- Rural and tribal regions are developing **eco-cultural tourism models** where visitors learn about traditional farming, food preparation, and ecological practices.
- This encourages **hospitality entrepreneurship**, promotes cultural preservation, and creates seasonal jobs.

Example: In Kerala's Wayanad district, tribal eco-tourism projects allow visitors to experience forest farming and traditional harvest rituals, generating income for the community.

In essence, IAKS is not just about sustainable farming—it acts as a **livelihood ecosystem**. It supports **employment, skill development, resource conservation, and rural innovation**, making it a key strategy for holistic rural development in India.

Challenges and Policy Gaps

Despite the ecological and economic benefits of Indigenous Agricultural Knowledge Systems (IAKS), their integration into formal agricultural policy and practice in India remains limited. Several **institutional, legal, and socio-cultural challenges** hinder the wider adoption and recognition of IAKS. These issues must be addressed to ensure that traditional knowledge is preserved, respected, and utilized effectively in contemporary rural development.

Lack of Documentation and Formal Recognition

A major barrier to the promotion of IAKS is the **absence of systematic documentation**:

- Much of this knowledge is **oral, experiential, and context-specific**, making it vulnerable to erosion as elder knowledge holders pass away.
- Formal research institutions and universities have largely focused on **Western scientific approaches**, often ignoring or devaluing traditional systems.
- As a result, IAKS is **marginalized in academic discourse**, agricultural training curricula, and policy-making.

Implication: The invisibility of IAKS in formal records leads to **limited credibility**, making it harder for farmers to receive institutional support or funding based on traditional practices.

Limited Integration in Mainstream Agricultural Extension Services

Modern agricultural extension services in India are primarily focused on **input-intensive, yield-maximization models**, promoting chemical fertilizers, hybrid seeds, and mechanization.

- Field officers and Krishi Vigyan Kendras (KVKs) rarely include or promote **IAKS-based practices**.
- Farmers using traditional methods often **lack access to subsidies, market linkages, or technical advice**, leading to further marginalization.

- There is little investment in training extension workers on **how to integrate indigenous knowledge with modern practices** (e.g., agroecology, organic farming).

Example: A farmer using traditional pest repellents may be excluded from pesticide subsidy schemes, despite demonstrating effective outcomes.

Intellectual Property Rights (IPR) and Bio-Piracy Concerns

The commercialization of herbal products, indigenous seeds, and traditional techniques has led to growing **concerns about misappropriation**:

- **Bio-piracy** occurs when corporations or research institutions use traditional knowledge or genetic material without consent or benefit-sharing with local communities.
- Current IPR frameworks, such as patents, are **incompatible with the collective and informal nature** of IAKS.
- Though India has established systems like the **Traditional Knowledge Digital Library (TKDL)** and **Protection of Plant Varieties and Farmers' Rights (PPVFR) Act**, their implementation remains limited and fragmented.

Example: Several traditional rice and turmeric varieties have been patented abroad without proper acknowledgement or compensation to Indian farming communities.

Other Policy Gaps and Institutional Challenges

- **Fragmented governance**: Multiple ministries (agriculture, tribal affairs, environment) operate without a coordinated policy on traditional knowledge.
- **Lack of incentive mechanisms**: Farmers practicing IAKS are not rewarded under existing schemes like PM-KISAN or soil health initiatives.
- **Youth migration and cultural erosion**: The **intergenerational transmission of IAKS is declining** due to rural-urban migration and changing aspirations.

Addressing these challenges requires a **multidimensional policy shift**—one that recognizes indigenous knowledge not as primitive or backward, but as a **valuable asset** to be conserved, promoted, and integrated into India's agricultural future.

Conclusion

Indigenous Agricultural Knowledge Systems (IAKS) represent a **rich reservoir of ecological intelligence, economic resilience, and cultural heritage** rooted in centuries of farming experience. As India continues to grapple with challenges such as climate change, soil degradation, rural unemployment, and unsustainable input costs, the value of these traditional systems is becoming increasingly evident.

This paper has highlighted the **untapped economic potential of IAKS**—from reducing production costs and enhancing climate resilience, to promoting rural entrepreneurship and diversifying livelihoods. Despite these benefits, traditional knowledge remains marginalized due to lack of formal recognition, inadequate policy integration, and intellectual property concerns.

Moving forward, what is needed is not a rejection of modern agricultural science, but a **balanced and integrative approach** that respects and incorporates traditional wisdom alongside contemporary innovations. By bridging this gap, India can foster a more inclusive, sustainable, and economically viable agricultural system that truly empowers its rural communities.

The future of Indian agriculture lies not in choosing between tradition and technology, but in harmonizing both to build a system that is **resilient, regenerative, and rooted in local knowledge**.

Way Forward

To ensure that Indigenous Agricultural Knowledge Systems (IAKS) are not only preserved but actively leveraged for sustainable and inclusive rural development, a shift in policy, research, and institutional mindset is urgently needed. The following recommendations offer a roadmap to **mainstream IAKS** within India's agricultural framework while empowering rural communities.

Integrating IAKS into Formal Agricultural Education and Policy

- Introduce **IAKS modules in agricultural universities, extension services, and training programs** to bridge the gap between traditional and scientific knowledge.
- Develop **hybrid extension models** that combine modern technology with indigenous methods (e.g., mobile apps that deliver IAKS-based advisories).
- Ensure that national agricultural policies (like the National Mission on Sustainable Agriculture) **explicitly include traditional practices** in their implementation strategies.

Policy Example: State-level organic farming policies in Sikkim and Andhra Pradesh have begun integrating traditional knowledge with modern frameworks.

Encouraging Participatory Research with Farmers

- Promote **Participatory Rural Appraisal (PRA)** and **Farmer Field Schools (FFS)** that treat farmers as co-researchers, not just beneficiaries.
- Support **collaborative experiments** between scientists and traditional knowledge holders to validate and refine IAKS techniques.
- Set up **IAKS innovation hubs** or rural knowledge centers where farmers can share practices, test innovations, and engage with researchers.

Example: Organizations like the Deccan Development Society and Navdanya have pioneered community-led research and farmer-scientist collaborations.

Supporting Community-led Documentation and Preservation

- Fund and facilitate **village-level knowledge documentation projects**, including local ethnographies, videos, and oral history archives.
- Encourage **youth participation** through school programs, digital storytelling, and competitions on traditional ecological knowledge.

- Recognize and **honor local knowledge holders** through awards, fellowships, and media representation.

Initiative: The National Innovation Foundation (NIF) and Honey Bee Network have successfully documented and promoted grassroots innovations and indigenous knowledge systems.

Providing Financial Incentives and Support for IAKS-Based Practices

- Include IAKS-based practices under **subsidy schemes and support programs** (e.g., composting, indigenous seed use, crop diversity).
- Offer **carbon credits, soil health incentives, or eco-certifications** to farmers adopting sustainable traditional practices.
- Promote **fair trade and organic certification** for IAKS-based produce to enhance market access and profitability.

Example: Farmers practicing Zero Budget Natural Farming (ZBNF) in Andhra Pradesh now benefit from government incentives, training, and market linkages.

Legal Protection and Benefit Sharing

- Strengthen enforcement of the **Protection of Plant Varieties and Farmers' Rights (PPVFR) Act**, ensuring farmers retain rights over traditional seeds.
- Enhance protection against **bio-piracy** through expanded use of the **Traditional Knowledge Digital Library (TKDL)**.
- Encourage **community rights over biological resources** under the Biodiversity Act to ensure equitable benefit-sharing.

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Effects of Patents on India's Manufacturing Sectors: A Theoretical Examination with Special Reference to Uttar Pradesh (2010-2024)

Dr. L.M. Singh Baghel[1] & Neelam Prabha[2]

ABSTRACT

Patents have become an essential driver of industrial growth, technological innovation, and global competitiveness in emerging economies. India's manufacturing sector, particularly in Uttar Pradesh (UP), has experienced notable transformations following patent law reforms and strategic policy interventions. This theoretical paper synthesizes diverse streams of literature on intellectual property rights (IPRs), economic development, and state-level innovation policies to analyze how patents influence manufacturing in India, focusing on UP's evolving industrial landscape between 2010 and 2024. Special attention is given to initiatives introduced under the Yogi Adityanath Government from 2017 onwards, such as improved ease of doing business, sectoral incentives, and the "One District, One Product" (ODOP) scheme. This study concludes that while patents can stimulate research, development, and foreign investments, successful outcomes hinge on effective state policies, capacity-building programs, and a supportive infrastructure ecosystem.

Keywords: *Patents, Intellectual Property Rights (IPRs), Manufacturing Sector, Uttar Pradesh (UP), Technological Innovation, and One District, One Product (ODOP).*

Introduction

In today's rapidly evolving global economy, the role of **Intellectual Property (IP),** particularly patents, has become increasingly pivotal in shaping industrial growth and technological advancement. Patents, often perceived as the backbone of innovation, provide creators with exclusive rights to their inventions, thereby encouraging investment in research and development. This incentive structure is crucial for fostering an environment where new ideas can flourish, leading to breakthroughs that drive economic progress. However, the impact of patent laws is not universally positive; while they can stimulate growth and attract foreign investments, overly stringent regulations may inadvertently stifle smaller enterprises and hinder the widespread dissemination of critical technologies.

The interconnection between IP regimes and industrial development has been a topic of considerable debate in economic and legal scholarship. At the national level, robust patent protection

1. Professor, Department of Economics, J.N.M.P.G. COLLEGE, BARABANKI, U.P., 225001.
2. Assistant Professor, Department of Economics, J.N.M.P.G. COLLEGE, BARABANKI, U.P., 225001.

can incentivize R&D, foster technology transfer, and attract foreign direct investment. Conversely, stringent patent laws may create barriers for smaller firms, limit the diffusion of critical technologies, and raise the cost of production for essential goods. In the Indian context, the Patents (Amendment) Act of 2005 aligned the country's IP framework with the World Trade Organization's **TRIPS** (Trade-Related Aspects of Intellectual Property Rights) Agreement, fundamentally altering the innovation ecosystem. This landmark reform introduced more robust protections for inventors while embedding provisions to safeguard public interests, such as compulsory licensing for essential medicines.

India serves as a compelling case study in this context. As one of the world's largest emerging economies, India's approach to patent regulation offers valuable insights into the delicate balance between protecting innovation and ensuring accessible technology. By aligning its IP laws with international standards, India aimed to enhance its innovation capabilities and integrate more deeply into the global economy. However, this alignment also required careful consideration of domestic needs, particularly for smaller enterprises and sectors critical to public welfare.

Focusing on Uttar Pradesh, India's most populous state, provides a microcosmic view of the broader national trends. UP's manufacturing sector is a vibrant tapestry of traditional small and medium-sized enterprises (**SMEs)** and large-scale industries spanning pharmaceuticals, electronics, automobiles, textiles, etc. This diversity makes Uttar Pradesh an ideal setting to explore the multifaceted impacts of patent laws on industrial growth and competitiveness. Both traditional and modern industries represent the UP mirrors, and the national experience with its industrial base comprising various sectors that have been significantly influenced by IP reforms in the last decade.

Since 2017, under the leadership of Chief Minister Yogi Adityanath, UP has initiated a series of reforms aimed at transforming its industrial landscape. These reforms focus on improving industrial infrastructure, simplifying business processes, and launching targeted initiatives such as the **"One District, One Product" (ODOP)** scheme and the **Uttar Pradesh Defense Industrial Corridor.** These efforts aim to create a more conducive environment for manufacturing, enhance the ease of doing business, and stimulate innovation across various sectors. By integrating patent law reforms with these policy measures, the state seeks not only to attract FDI but also to empower local businesses to innovate and compete on a global stage.

This paper digs into the intricate relationship between patents and manufacturing in UP, drawing from a rich body of literature on intellectual property rights (IPRs), economic development, and state-level innovation policies. By synthesizing theoretical frameworks and empirical data spanning from 2010 to 2024, the study examines how patents influence manufacturing growth, knowledge spillovers, and the effectiveness of state-led developmental policies. Special emphasis is placed on the initiatives introduced by the Yogi Adityanath Government, analyzing their role in enhancing patenting activity and fostering a culture of innovation.

The broader significance of this study lies in its potential to inform policymakers and industry leaders about the critical factors that drive the successful integration of IP protections within industrial strategies. Understanding how patents can be leveraged to promote sustainable and inclusive manufacturing development is essential for states like UP that are striving to transition from traditional industries to more technology-intensive sectors.

Research Objectives

1. To explore theoretical frameworks linking patents and manufacturing sector performance.
2. To analyze the impact of India's evolving patent regime on UP's manufacturing industries.
3. To examine the role of the Yogi Adityanath Government's policies in encouraging patenting activity and industrial growth.
4. To propose policy recommendations for leveraging patents to promote inclusive and sustainable manufacturing development in UP.

Theoretical Framework and Literature Review

1. The Role of Patents in Economic and Industrial Theory

Endogenous Growth Theory *(Romer, 1990; Lucas, 1988)* posits that knowledge creation is the cornerstone of sustainable economic growth. Patents, by granting temporary monopolies, encourage firms and research institutions to invest in R&D, anticipating future returns from exclusive rights. This framework suggests that stronger patent protection could:

1. Enhance Innovation: Firms develop novel processes, products, and technologies.
2. Attract FDI: Multinational enterprises consider robust IP regimes essential for safeguarding proprietary technology.
3. Support Technology Transfer: Through licensing, joint ventures, and collaboration with local firms.

2. Patents and Manufacturing Competitiveness in Developing Countries

In developing countries, the impact of patents on manufacturing competitiveness is complex. *Maskus (2000)* points out that while good IP systems can attract technology, overly strict protections might prevent knowledge from spreading and make it hard for smaller firms to compete. *Rodrik (2004)* adds that a one-size-fits-all approach to patents can hinder local innovation.

3. Empirical Findings on India and Uttar Pradesh (2010–2024)

A review of patent filings in India between 2010 and 2024 (data from the Office of the Controller General of Patents, Designs & Trademarks, CGPDTM) shows:

1. Steady Growth: Patent applications increased from around 39,000 in 2010 to over 66,000 in 2023, with projections of about 70,000 in 2024.
2. Key Sectors: Pharmaceuticals, biotechnology, IT, and electronics lead the way.
3. Regional Leaders: Maharashtra, Karnataka, Tamil Nadu, and Delhi NCR dominate filings, while UP has seen moderate growth driven by new industries in areas like Noida, Kanpur, and Lucknow.

Studies specific to UP, like *Mishra (2021)*, show that smaller companies have been slower to adopt patents due to costs, lack of awareness, and insufficient legal support. However, recent government efforts are starting to change this.

Uttar Pradesh's Manufacturing Sector (2010–2024)

1. Sectoral Composition

Uttar Pradesh's manufacturing is diverse:

- Textiles & Handicrafts: Traditional hubs in Varanasi, Mirzapur, Lucknow, and Kanpur.
- Leather & Footwear: Kanpur and Agra are key centers for both local and export markets.
- Pharmaceuticals & Biotechnology: Growing in Lucknow, Ghaziabad, and Gautam Buddh Nagar (Noida).
- Automobile & Engineering: Concentrated around Noida and Greater Noida.
- Electronics & IT Hardware: Focused on Noida, leveraging its proximity to Delhi NCR.
- Steal & Iron: Ghaziabad, Noida.
- Wooden, Glass, & Metal Handicrafts: Saharanpur, Varanasi, Firozabad, and Muradabad.
- Aerospace: Lucknow.
- Hardware and Lock manufacturing: Aligarh.

2. Patent Filing Behavior in UP

From 2010 to 2016, UP saw around 1,500–2,000 patent applications annually. Between 2017 and 2024, this number grew to about 3,200–3,400 per year (CGPDTM Data).

The Yogi Adityanath Government's Efforts (2017–2024):

After taking the second term as CM office in 2017, Chief Minister Yogi Adityanath has introduced **policy measures** aimed at making Uttar Pradesh a more attractive destination for manufacturing, thereby indirectly boosting patenting activity and IP awareness. Key initiatives and their theoretical underpinnings include:

1. Industrial Infrastructure and Ease of Doing Business

- **Nivesh Mitra Porta**l: A single-window system for faster clearances and resolving grievances, reducing transaction costs, and encouraging new businesses *(Coase, 1937).*
- **Expressways and Connectivity**: Projects like the Purvanchal Expressway, Bundelkhand Expressway, and the upcoming Ganga Expressway reduce logistical barriers. Better infrastructure correlates with increased industrial clustering *(Krugman, 1991),* which often leads to higher rates of innovation and patent filings.

2. One District, One Product (ODOP) Scheme

- Launched in 2018, ODOP focuses on identifying one traditional product per district and extending support for branding, marketing, and technology upgrades. Although ODOP primarily supports SMEs in sectors like handicrafts, food processing, and textiles, it fosters "learning-by-doing" **(Arrow, 1962)** and can encourage incremental innovations, some of which may be patentable. For example, Kanpur's leather tanneries are developing eco-friendly tanning processes and filing patents for these new methods.

3. Uttar Pradesh Defense Industrial Corridor

- Started in 2018, this corridor aims to attract defense-related manufacturing and R&D to districts like Aligarh, Agra, Chitrakoot, Jhansi, and Kanpur. Defense manufacturing involves high-level innovations protected by patents and trade secrets, often through joint ventures with foreign companies, driving local patent filings.

4. MSME (Micro, Small, and Medium Enterprises) Support Programs

UP's MSME Department offers:

- Subsidized Loans: For technology upgrades.
- IP Awareness Workshops: In partnership with industry associations.
- Patent Filing Assistance to encourage smaller enterprises to protect their innovations.

Theoretically, these interventions lower barriers to entry *(Stiglitz, 1989)* and reduce market failures where SMEs lack information and resources to engage with the patent system.

5. Skill Development and R&D Incentives

- UP Startup Policy (2020): Offers fiscal incentives for technology startups and incubators.
- Collaborations with Academic Institutions: Partnerships with universities and research centers (e.g., IIT Kanpur, Dr. A.P.J. Abdul Kalam Technical University) to boost patentable research. Such collaborations often follow the **Triple Helix Model** *(Etzkowitz & Leydesdorff, 2000),* where government, industry, and academia co-create an innovation ecosystem.

6. Outcomes and Preliminary Indicators: According to UP Government data (2023):

- Manufacturing Output Growth: UP's manufacturing sector grew at an average annual rate of 9% between 2017 and 2023, outpacing the national average of 7%.
- New Investment Proposals: Over USD 50 billion in investment intentions recorded at the UP Global Investors Summit (2023), with a significant proportion in technology-intensive sectors (electronics, defense, pharmaceuticals).
- Patent Awareness: Surveys by industry associations show a 30–35% rise in SMEs seeking patent-related guidance or services, suggesting growing awareness.

Theoretical Implications for Patents in UP's Manufacturing:

1. Endogenous Growth and Regional Clusters

The synergy between robust patent protection and industrial policy in UP can, in theory, lead to "virtuous circles" of innovation. Firms with patent-protected products and processes can reinvest profits into R&D, further enhancing technology capabilities. Regional clusters (e.g., electronics in Noida, leather in Kanpur) may experience agglomeration benefits, leading to spillover knowledge and increased innovation capacity.

2. Knowledge Spillovers vs. Market Power

While patents stimulate investment, they also grant temporary monopoly power. The question is whether local suppliers and SMEs benefit through knowledge spillovers or remain locked out by

high licensing fees. State-led measures like subsidized patent filing and awareness initiatives can mitigate potential downsides.

3. Balancing Public Good and Private Incentives

Particularly in sectors like pharmaceuticals, patents can raise the cost of essential medicines. UP's large population underscores the importance of balancing incentives for drug innovation with affordability. Compulsory licensing provisions in the Patents Act (1970) still stand as a legal safeguard for public health.

Challenges and Criticisms

1. **Enforcement and Litigation:** Slow judicial processes and limited IP enforcement capacity in district courts make it hard to effectively use patents.
2. **SME Accessibility:** Many small businesses still find patents too costly or complicated, limiting widespread adoption.
3. **Patent Quality Concerns:** The surge in patent filings raises worries about the thoroughness of examinations and the potential for low-quality or frivolous patents.
4. **Human Capital:** There's a shortage of skilled workers in advanced manufacturing and R&D, even with recent training initiatives.

Conclusion and Policy Recommendations

1. Summary:

This paper has presented a theoretical examination of how patents influence India's manufacturing landscape, focusing on UP's policy reforms and industrial changes up to 2024. The Yogi Adityanath Government's focus on improving infrastructure, simplifying regulations, supporting SMEs, and launching sector-specific initiatives like ODOP and the Defense Corridor has helped bridge gaps in IP awareness and usage. Patent filings in UP have grown steadily, indicating a budding culture of innovation.

2. Recommendations:

1. Strengthen Patent Facilitation Centers: **Set up dedicated IP centers in major industrial areas to provide legal aid, subsidized filing fees, and technical training.**
2. **Enhance Collaboration with Academia:** Encourage technology transfer by linking university research to local industries, including startup incubators.
3. **Improve Patent Enforcement:** Invest in specialized IP courts or fast-track tribunals to resolve patent disputes quickly.
4. **Focus on Patent Quality:** Promote thorough patent searches and robust examinations to maintain credibility and reduce legal uncertainties.
5. **Augment Human Capital:** Expand technical and vocational training tailored to advanced manufacturing, and promote ongoing education in patent law and IP management.

6. **Inclusive Policies for SMEs:** Offer additional financial support, training, and mentorship programs to help small businesses navigate the patent landscape.

3. Future Research Directions:

1. Comparative Analysis: Examine parallel industrial states (e.g., Maharashtra, Tamil Nadu) to understand best practices and adapt them to UP's context.
2. Impact Assessment of ODOP: Conduct detailed studies on how ODOP influences patentable innovations, technology upgrades, and SME growth.
3. Digital Tools and IP: Explore how emerging technologies like AI and IoT can simplify patent filings and foster open innovation platforms.

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Integral Humanism and Economic Thought: The Indian Knowledge System and Swami Vivekananda's Vision of Sustainable Development

Prof. (Dr.) Monika Mehrotra[1] & Prof. (Dr.) Dushyant Kumar[2]

ABSTRACT

Swami Vivekananda's ideology integrates economic development with spiritual and ethical dimensions, arguing for a self-sufficient, inclusive economy guided by human values. This study investigates the integration of the Indian Knowledge System (IKS) and economic theory, comparing Swami Vivekananda's vision to present sustainable development ideas. This study uses an interdisciplinary approach to illustrate how Integral Humanism, which is strongly rooted in Indian traditions, provides solutions to present economic difficulties.

Introduction

Dharma, self-sufficiency, and social welfare concepts have all had a significant impact on Indian economic theory. Swami Vivekananda highlighted the need of education, ethical entrepreneurship, and self-reliance in economic advancement. His teachings are consistent with the greater Indian Knowledge System, which incorporates both material and spiritual advancement. This study analyzes the importance of his perspective in terms of Integral Humanism and sustainable development.

Research Objectives

1. To analyze Swami Vivekananda's economic philosophy within the framework of Integral Humanism.
2. To explore the relationship between the Indian Knowledge System and economic sustainability.
3. To examine the role of ethics, spirituality, and self-reliance in economic policies inspired by Vivekananda's teachings.
4. To propose an economic model that aligns with both modern development needs and traditional Indian wisdom.

1. Professor, Department of Liberal Arts and Humanities, Convener, Swami Vivekanand Research Chair Swami Vivekanand Shubharti University Meerut. E-mail: drmonikamehrotra@gmail.com /monikasristi@gmail.com
2. Principal, Upadhi Post Graduate College Pilibhit U.P. Email-malikdk95@gmail.com

Research Methodology

This study employs a qualitative research approach, incorporating the following methods:

- **Historical Analysis**: Examining Swami Vivekananda's speeches, writings, and contemporary interpretations of his work.
- **Comparative Analysis**: Comparing Indian economic thought with Western models and analyzing their effectiveness.
- **Thematic Analysis**: Identifying key themes in Indian Knowledge Systems and their relevance to sustainable development.
- **Case Studies**: Assessing real-world applications of Vivekananda's economic ideas in rural development, cooperative models, and self-help initiatives.

Integral Humanism and Economic Thought

Pandit Deendayal Upadhyaya's Integral Humanism promotes a comprehensive approach to economic development that is based on India's cultural and philosophical roots. It advocates a model that strikes a balance between material progress and spiritual well-being, ensuring that economic policies are consistent with human dignity and social harmony. Unlike capitalist systems that focus profit or socialist models that highlight state control, Integral Humanism envisions an economy that promotes self-sufficiency while upholding social justice.

This philosophy stresses decentralization, self-sufficiency, and village-based industry, deriving influence from Gandhi's concept of trusteeship. It advocates an economic paradigm in which wealth creation is not solely for individual gain, but also for the common wellbeing of society. The strategy acknowledges the value of both agriculture and industry, guaranteeing that economic development does not result in exploitation or environmental deterioration.

Integral Humanism can help to address today's economic difficulties by advocating for sustainable development, ethical entrepreneurship, and equitable growth. It promotes policies that combine technology and traditional knowledge, creating a system in which economic progress does not come at the expense of cultural degradation or social inequity. Integral Humanism lays the groundwork for a more egalitarian and compassionate economic order by integrating economic philosophy with moral and ethical ideals.

Integral Humanism, a notion profoundly entrenched in Indian tradition, advocates for a balanced approach to economic and social advancement. It integrates:

Material and Spiritual Prosperity

Swami Vivekananda's vision, unlike strictly capitalistic models that focus primarily on economic creation, incorporates material success and spiritual well-being. He thought that economic prosperity could not be divorced from ethics and moral responsibilities. Wealth production, according to his ideology, must be led by justice (dharma) and should benefit society as whole. He highlighted that true success entails not only the accumulation of wealth, but also the development of character, compassion, and civic responsibility. This perspective is consistent with Integral Humanism, which prioritizes economic advancement over moral and spiritual degeneration.

Self-Reliance and Decentralization

Vivekananda was a great supporter of self-reliance and decentralised economic arrangements. He promoted village economic development through local production, small-scale industries, and cooperative companies. This idea is consistent with Integral Humanism's principle of reducing reliance on foreign economies while promoting local skill development. Economic power can be spread across society rather than concentrated in urban centers or corporate monopolies by encouraging vocational education and supporting artisans, farmers, and small companies. This paradigm enables long-term growth while maintaining cultural and economic independence.

Education and Empowerment

Vivekananda saw education as more than just a source of employment; it was also an instrument for economic independence and nation-building. He thought that empowering people via education, particularly vocational and skill-based training, was essential for economic self-sufficiency. Integral Humanism shares this viewpoint, emphasizing holistic education that develops intellect, practical skills, and ethical ideals. A well-educated and self-aware people can promote entrepreneurship, innovation, and responsible economic leadership, resulting in national wealth.

Ethical Entrepreneurship

Vivekananda believed that economic activities should put human welfare over profit. Ethical entrepreneurship entails using enterprises to benefit society by guaranteeing fair salaries, worker welfare, and sustainable practices. This is consistent with Integral Humanism's appeal for a just economic order in which wealth creation is linked to the well-being of all members of society. Businesses that integrate ancient Indian values with modern economic concepts can contribute to both economic success and moral upliftment, resulting in a system in which prosperity is shared rather than hoarded.

Indian Knowledge System and Sustainable Development

The Indian Knowledge System (IKS) offers in-depth insights into sustainable economic methods that balance material advancement with ethical and environmental well-being. This system, founded on ancient wisdom and refined through the teachings of great thinkers such as Swami Vivekananda and Mahatma Gandhi, promotes economic models that are just, self-sustaining, and environmentally friendly.

Dharmic Economics: Ethical Decision-Making in Economic Policies

Dharmic economics is founded on the principle of righteousness (dharma) in economic issues, which ensures that wealth generation is consistent with ethical principles. Dharmic economics, as opposed to materialistic economic models that prioritize profit maximization, places an emphasis on fair trade, environmental responsibility, and social welfare. Swami Vivekananda thought that wealth should be gained honestly and used for the benefit of society. Economic policies based on this idea promote transparency, responsible capitalism, and sustainable development techniques that benefit all stakeholders rather than just a few.

Gandhian Trusteeship and Vivekananda's Vision: Bridging Wealth Creation and Social Justice

Gandhian trusteeship recommends that wealth be held in trust for societal benefit rather than owned by individuals. This approach is consistent with Vivekananda's worldview, which saw wealth as a tool to help people rather than an aim in itself. Both philosophies urge for corporations and individuals to act as guardians of resources, guaranteeing equitable distribution and opposing exploitation. By incorporating this concept into modern economic policy, countries can strike a balance between entrepreneurship and social justice, lowering inequality while promoting economic dynamism.

Yoga and Well-Being Economics: A Holistic Approach to Labor Productivity and Economic Sustainability

The Indian Knowledge System understands that economic production is inextricably related to human well-being. Yoga and holistic health techniques promote physical, mental, and emotional well-being while increasing workforce efficiency and lowering healthcare expenses. A culture that values well-being through work-life balance, stress management, and ethical business practices fosters a more sustainable economy. Businesses that incorporate these ideas into their labor policy and workplace settings can improve employee performance, prevent burnout, and promote long-term economic stability.

By embracing these ancient yet forward-thinking economic concepts, the Indian Knowledge System presents a road map for long-term development that balances economic progress with ethical responsibility, social welfare, and environmental sustainability.

Practical Applications and Policy Implications

The combination of Indian traditional wisdom and modern economic policies can result in a more sustainable, ethical, and inclusive development model. Policymakers may establish frameworks that balance economic growth, social fairness, and environmental sustainability by relying on India's rich history and visionary figures such as Swami Vivekananda.

1. Incorporating Traditional Wisdom in Economic Policies

Indian knowledge traditions highlight the need of a balanced relationship between the economy, society, and nature. Dharmic economics, sarvodaya (universal upliftment), and swadeshi (self-reliance) all provide essential insights for long-term economic plans. Policies can help to incorporate these concepts by fostering responsible capitalism, fair trade practices, and environmentally friendly industrialization. Encouraging organic farming, Ayurvedic medicines, and traditional handicrafts will help India's worldwide economic position while maintaining indigenous knowledge.

2. Empowering Rural India

Self-sufficient communities form the foundation of a sustainable economy. Strengthening rural India through microfinance, cooperative movements, and indigenous industries will help to decrease

urban migration and ensure equitable growth. Policies that encourage local entrepreneurship, increase credit availability, and create market connections for traditional craftspeople can help accelerate rural economic development. The promotion of village-based enterprises, as envisioned by Gandhi and Vivekananda, has the potential to generate employment while also maintaining India's cultural legacy.

3. Reviving Ethical Business Practices

Swami Vivekananda highlighted the importance of ethics in economic life, pushing for firms that benefit people rather than exploiting resources. Modern corporate governance can incorporate these ideals by requiring equitable salaries, ethical production, and corporate social responsibility (CSR). Government incentives for enterprises that promote sustainability, social effect, and inclusive employment can help to create an economy that balances profits and ethics. Encouraging enterprises to adhere to trusteeship principles can result in wealth distribution that benefits society rather than a chosen few.

4. Education as a Catalyst for Economic Change

Education policies should emphasize skill development, entrepreneurship, and nation-building. A curriculum that combines India's philosophical and economic wisdom with modern technology can produce an inventive workforce grounded in ethical ideals. To empower young people to be economic changemakers, policies should prioritize vocational training, research-based education, and leadership development. Strengthening digital education and skill-based learning can bridge the gap between academics and industry, resulting in economic growth.

By implementing these measures, policymakers may ensure that economic growth is not only quick, but also sustainable, equitable, and firmly embedded in India's cultural character.

Data Anticipation for the Study

This study will rely on a combination of historical analysis, case studies, and thematic analysis to anticipate key data trends supporting Swami Vivekananda's economic thought and its relevance to contemporary sustainable development models.

1. Economic Self-Reliance and Village Economy

- **GDP Contribution of Rural Industries:** Anticipated increase in rural GDP contribution with policies promoting self-reliance and decentralized economies.
- **Growth in MSMEs:** Micro, Small, and Medium Enterprises (MSMEs) benefiting from traditional skills and government schemes (like PMEGP, SFURTI, etc.).
- **Agricultural Productivity and Sustainability:** Data showing how organic farming and self-sufficient rural models contribute to long-term sustainability.

2. Education, Vocational Training, and Economic Empowerment

- **Increase in Skill-Based Employment:** Growth in employment due to skill-based education reforms aligning with Vivekananda's philosophy.

- **Effectiveness of NEP 2020:** Data on how National Education Policy (NEP) 2020 is impacting vocational education and entrepreneurship.
- **Rise in Rural Entrepreneurship:** Statistics on startups and cooperative movements in rural areas supported by traditional knowledge systems.

3. Ethical Entrepreneurship and Dharmic Economics

- **Increase in Ethical Business Practices:** Growth in social enterprises and companies implementing CSR initiatives aligned with dharmic principles.
- **Impact of Trusteeship Model:** Case studies of companies following the Gandhian-Vivekananda model of wealth as social trust.
- **Expansion of Fair Trade and Sustainable Businesses:** Growth in businesses adopting sustainability and ethical profit-sharing models.

4. Integral Humanism and Economic Growth

- **Comparison of Capitalist vs. Integral Humanism Model:** Economic performance data contrasting profit-driven economies with community-driven wealth distribution models.
- **Growth in Community-Based Industries:** Increase in village and cooperative industries as a result of decentralized economic policies.
- **Impact on Income Inequality:** Data showing reduction in wealth disparity in areas where Integral Humanism policies have been implemented.

5. Sustainable Development and Environmental Ethics

- **Increase in Adoption of Traditional Knowledge in Sustainability:** Data showing how ancient Indian knowledge systems (e.g., Ayurveda, organic farming, water conservation) are helping to combat environmental degradation.
- **Reduction in Carbon Footprint Through Traditional Methods:** Case studies on how eco-friendly indigenous industries have reduced pollution and increased sustainability.
- **Impact of Yoga and Well-Being Economics on Workforce Productivity:** Data linking mental and physical well-being to improved labor efficiency and reduced healthcare costs.

6. Case Studies for Practical Applications

- **Amul Cooperative Model:** A successful example of a rural cooperative business thriving on self-reliance and social equity.
- **SEWA (Self-Employed Women's Association):** A case of empowering women entrepreneurs through microfinance and skill-based training.
- **Organic Farming in Sikkim:** A model for sustainable agriculture aligned with traditional Indian knowledge systems.

The anticipated data from these diverse sources will validate how Swami Vivekananda's economic thought, when combined with Integral Humanism and the Indian Knowledge System, provides a robust framework for sustainable, ethical, and inclusive economic growth. This research aims to offer policy insights that balance material progress with ethical and spiritual values, ensuring a holistic approach to economic development.

Conclusion

Swami Vivekananda's vision lays out a sophisticated economic framework that balances material wealth with ethical and spiritual principles. His beliefs are based on Integral Humanism and the Indian Knowledge System, and they emphasize self-reliance, sustainability, and inclusive development. Unlike solely capitalist or socialist models, Vivekananda's approach advocates for an economy in which wealth production is motivated by a sense of social responsibility and justice, rather than greed.

By incorporating these concepts into current economic policy, India may create a system that balances industrial development with rural empowerment, ethical entrepreneurship with innovation, and economic prosperity with social well-being. Empowering rural communities through microfinance, cooperative enterprises, and traditional crafts can result in self-sufficient economies. Similarly, incorporating ethical business principles into company governance helps promote long-term sustainability above short-term profit maximization.

Furthermore, education remains an important pillar in creating an economically self-sufficient and morally upright community. Reforming educational systems to prioritize skill development, entrepreneurship, and national service may produce a workforce that not only promotes economic growth but also respects India's cultural and ethical values.

The findings of this study reaffirm that India's economic future lay in combining its rich intellectual traditions with contemporary economic techniques, resulting in a just, resilient, and affluent society.

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Arthashastra to Atmanirbharta: Reimagining Indian Commerce and Trade through the Lens of the Indian Knowledge System (IKS)

Mr. Ashish Mishra[1] & Dr. Pradyumna Kumar Richhariya[2]

ABSTRACT

"Centuries of accumulated wisdom, known as the Indian Knowledge System (IKS), provide a comprehensive framework for understanding diverse fields, including the economic dimensions of commerce and trade. This study examines the multifaceted nature of IKS, specifically focusing on its enduring relevance to contemporary Indian commercial activities. By meticulously analyzing historical texts such as the Arthashastra*,* Manusmriti*, and other relevant scriptures, this research aims to systematically extract the inherent economic principles embedded within IKS. This involves a detailed exploration of the philosophical and practical underpinnings of trade as articulated in these texts, investigating concepts like Dharma, Nyaya, and Niti to understand their influence on ethical commercial conduct. Furthermore, the study analyzes the historical impact of Varnashrama Dharma on economic roles and trade networks, and scrutinizes ancient notions of taxation, resource allocation, and governmental regulation. Subsequently, this investigation evaluates the practical application of IKS in current economic contexts, assessing its potential to address pressing issues such as sustainable development, inclusive economic growth, and responsible consumption. It investigates how traditional knowledge can be integrated into modern business structures, supply networks, and financial systems, and analyzes its contribution to strengthening rural economies and artisanal sectors. The research further delves into the potential of IKS to foster Atmanirbharta (self-reliance), examining its guidance in the development of domestic technologies and market strategies, the promotion of local resource utilization, and the creation of a robust economic infrastructure. Practical applications are illustrated through case studies of contemporary Indian enterprises that have effectively incorporated IKS principles, and by analyzing its potential in sustainable agricultural practices, traditional crafts, and ethically grounded financial practices. Finally, this analysis addresses the obstacles associated with integrating IKS into mainstream economic discussions, proposes a structural framework for its inclusion in educational curricula and policy formation, and explores the development of contemporary economic models inspired by the principles of IKS."*

Keywords: *Indian Knowledge System (IKS),* Arthashastra*,* Atmanirbharta*, Sustainable Development, Indigenous Knowledge*

1. Research Scholar, Sardar Bhagat Singh, Govt. PG College, Rudrapur (U.S. Nagar), (U.K).
   E-mail: mishraashish990@gmail.com
2. Assistant Professor, Sardar Bhagat Singh, Govt. PG College, Rudrapur (U.S. Nagar), (U.K).
   E-mail: pradyumnarichhariya@gmail.com

INTRODUCTION

REVISITING INDIA'S ECONOMIC LEGACY

The trajectory of Indian commerce and trade, from the ancient wisdom enshrined in texts like the *Arthashastra* to the contemporary aspiration of *Atmanirbharta* (self-reliance), presents a compelling narrative of continuity and transformation. This research endeavors to explore this evolution, not merely as a historical progression, but through the insightful lens of the Indian Knowledge System (IKS). By examining foundational economic and political principles articulated in ancient Indian thought alongside the modern imperative for self-sufficiency, this paper seeks to reimagine the future of Indian commerce and trade. It posits that a deeper engagement with the core tenets of IKS can offer unique perspectives and innovative pathways for achieving a robust and ethically grounded economic ecosystem aligned with the nation's unique cultural and philosophical heritage. This study aims to bridge the historical wisdom with contemporary challenges, ultimately contributing to a more nuanced understanding of India's economic potential in the 21st century.

India's economic history has been rich, diverse, and evolved over millennia. One of the earliest and most significant treatises on governance and economics, the *Arthashastra* by Kautilya (also known as Chanakya), offers a unique lens into ancient Indian economic principles, encompassing trade, commerce, wealth, and statecraft. Fast forward to the 21st century, India's push towards *Atmanirbharta* (self-reliance) has created a resurgence of interest in understanding how India's ancient knowledge systems (IKS) can be applied to modern economic challenges.

The concept of *Atmanirbharta* resonates with India's historic emphasis on sustainable economic growth, self-sufficiency, and the importance of a thriving internal economy. This article seeks to explore the evolution from the *Arthashastra* to modern *Atmanirbharta* and analyze how the IKS can be a crucial tool in reimagining Indian commerce and trade.

The *Arthashastra*, authored by Kautilya around the 4th century BCE, is one of the most comprehensive texts on governance, politics, economics, and military strategy. It presents a holistic view of statecraft, where commerce and trade are vital components of a flourishing economy. Kautilya emphasized the importance of *dharma* (duty), *artha* (prosperity), and *kama* (pleasures) in building a balanced society.

ARTHASHASTRA CONCEPTS:

1. **Role of Trade and Commerce:** Kautilya recognized the critical role of trade in generating wealth and supporting the state. He advocated for a robust economic system that promoted trade, both domestic and international, with well-established markets, effective regulation, and taxation systems.
2. **State Control and Regulation:** The text detailed how the state could regulate markets, prevent monopolies, ensure fair trade practices, and set up trade routes for commerce to thrive. This reflects an early understanding of the importance of state intervention in economic matters.
3. **Taxation and Wealth Distribution:** Kautilya's principles on taxation were grounded in fairness and the need for wealth redistribution to ensure social stability. He understood that a thriving middle class and well-compensated workers were essential for economic growth.

In today's context, the principles found in the *Arthashastra*—such as economic self-sufficiency, strategic trade policies, and market regulation—are relevant to India's efforts to create a balanced, sustainable economy.

OBJECTIVES

1. To scrutinize the Arthashastra's teachings regarding skill development, manufacturing, and wealth generation.
2. To probe the Indian Knowledge System (IKS) as a foundation for indigenous innovative practices.
3. To conduct a critical evaluation of utilizing IKS to achieve indigenous innovation and economic empowerment in modern India.
4. To analyze specific examples (case studies) of innovation and economic empowerment derived from IKS.
5. To assess the policy frameworks designed to support IKS-driven innovation and economic empowerment.

THE ARTHASHASTRA ON SKILL DEVELOPMENT, MANUFACTURING, AND WEALTH CREATION

1. Kautilya's Arthashastra, an ancient Indian treatise on statecraft, economics, and military strategy, offers profound insights into the principles of wealth creation and economic prosperity. Far from being solely a political text, it dedicates significant attention to the cultivation of specialized skills, the organization of manufacturing, and the facilitation of trade, recognizing these as fundamental pillars of a strong and prosperous kingdom. Its detailed prescriptions highlight a sophisticated understanding of economic dynamics that remains relevant even today.
2. A cornerstone of the Arthashastra's economic philosophy is the emphasis on specialized skills and the meticulous organization of crafts and industries. Kautilya advocates for a structured system where individuals are trained and employed according to their aptitudes and expertise. This division of labor, overseen by state-appointed superintendents, ensures efficiency and quality in production. Different crafts, ranging from textile weaving and metalworking to carpentry and mining, are meticulously categorized and regulated. The state actively promotes the acquisition of specific skills through training and apprenticeship, recognizing that a skilled workforce is essential for producing high-quality goods and driving economic growth. This systematic approach not only enhances productivity but also fosters innovation within specialized domains.
3. The Arthashastra also underscores the crucial role of guilds and artisan communities in fostering economic prosperity. These collective bodies, while subject to state oversight to prevent exploitation and maintain standards, are recognized as vital engines of production and innovation. Guilds provide a framework for knowledge sharing, skill development, and the maintenance of quality standards within specific crafts. They act as organized units for production and trade, contributing significantly to the kingdom's overall economic output.

The state, in turn, interacts with these communities, levying taxes and ensuring fair practices, thus establishing a symbiotic relationship that benefits both the treasury and the artisans. The recognition of these communities highlights an understanding of the power of collective expertise and organized production in driving economic advancement.

4. The Arthashastra lays out strategic approaches for promoting manufacturing and value addition within the kingdom. It encourages the utilization of local resources and the development of indigenous industries to reduce dependence on external sources. The state plays an active role in establishing workshops and factories, particularly in strategic sectors such as weaponry and mining. Incentives and support are provided to encourage innovation and the production of high-value goods. By emphasizing value addition – transforming raw materials into finished products – the Arthashastra recognizes the potential to generate greater wealth and employment opportunities within the kingdom. This focus on internal production not only strengthens the economy but also enhances the kingdom's self-sufficiency and resilience.

5. The Arthashastra astutely recognizes the importance of robust trade networks and accessible markets for sustained economic growth. It emphasizes the development and maintenance of secure trade routes, both internal and external, to facilitate the movement of goods. The state invests in infrastructure such as roads and waterways to lower transportation costs and enhance trade efficiency. Regulations are put in place to ensure fair trade practices, protect merchants from fraud, and standardize weights and measures. The Arthashastra also advocates for establishing marketplaces and trade centers, fostering interaction between producers and consumers. By actively promoting trade and ensuring market access, the Arthashastra demonstrates an understanding that economic prosperity is not solely dependent on production but also on the efficient distribution and exchange of goods. This outward-looking approach to trade allows the kingdom to benefit from specialization, access new resources, and generate wealth through commerce.

THE INDIAN KNOWLEDGE SYSTEM AS A REPOSITORY OF INDIGENOUS INNOVATION

1. The Indian Knowledge System (IKS), a vast and multifaceted repository of wisdom accumulated over millennia, stands as a testament to India's rich intellectual and practical heritage. Far from being a static collection of ancient texts, IKS is a dynamic source of indigenous innovation, holding immense potential for addressing contemporary challenges across diverse fields. Its unique strengths lie in its holistic approach, sustainable practices, and the interconnectedness of its various knowledge domains.

2. One of the most striking features of IKS is the breadth of its intellectual landscape. Ancient Indian texts and traditions encompass sophisticated understanding in areas like engineering, evident in the intricate architecture of temples and water management systems. Metallurgy reached remarkable heights, producing high-quality steel centuries ago. The textile industry flourished with unique dyeing techniques and weaving traditions. Agriculture, deeply rooted in ecological understanding, developed sophisticated methods of crop management, soil fertility, and water conservation. These diverse fields within IKS are not merely historical curiosities but contain principles and techniques ripe for modern adaptation and innovation.

3. IKS is replete with traditional techniques and practices that offer inherently sustainable and cost-effective solutions. The emphasis on natural materials in construction, water harvesting through stepwells and tanks, organic farming practices utilizing bio-fertilizers and crop rotation, and the use of herbal remedies in healthcare all point towards a deep understanding of ecological balance and resource management. These time-tested approaches provide valuable alternatives to resource-intensive modern practices, offering pathways towards environmental sustainability and economic viability, particularly in resource-constrained settings.
4. The strength of IKS as a source of innovation also stems from the interconnectedness of its knowledge domains. The holistic worldview inherent in IKS fosters a cross-disciplinary approach where principles from one field can inform and enrich another. For instance, the understanding of natural rhythms in Ayurveda can provide insights into sustainable agricultural practices. The mathematical principles underlying ancient architecture can inspire innovative structural designs. This inherent interconnectedness encourages a synergistic approach to problem-solving, unlocking potential for novel and integrated solutions that might be overlooked in more compartmentalized systems of knowledge. By recognizing and leveraging these diverse yet interconnected fields, IKS can serve as a powerful engine for indigenous innovation, offering unique and sustainable pathways for progress in the 21st century and beyond.

LEVERAGING IKS FOR INDIGENOUS INNOVATION AND ECONOMIC EMPOWERMENT IN MODERN INDIA

1. **Identifying and revitalizing traditional crafts and industries with contemporary relevance:** Many traditional Indian crafts and industries possess inherent sustainability and unique aesthetic appeal. Revitalizing these by infusing contemporary design sensibilities, improving production techniques, and ensuring quality standards can create valuable products for modern markets. For instance, handloom textiles with updated designs and natural dyes, or traditional pottery adapted for modern kitchens, can find new consumer bases both domestically and internationally. This not only preserves cultural heritage but also generates livelihoods for artisans and craftspeople.
2. **Integrating traditional knowledge with modern technologies for innovative solutions:** The synergy between IKS and modern technologies can lead to groundbreaking innovations. Traditional agricultural practices, when combined with data analytics and precision farming techniques, can enhance productivity and sustainability. Similarly, Ayurvedic knowledge integrated with modern pharmaceutical research can yield novel healthcare solutions. This interdisciplinary approach can create unique products and services that address contemporary challenges while respecting indigenous wisdom.
3. **Fostering entrepreneurship and skill development based on indigenous knowledge systems:** IKS provides a fertile ground for nurturing entrepreneurship at the grassroots level. By recognizing and valorising traditional skills and knowledge, local communities can develop unique value propositions. Skill development initiatives focused on enhancing these traditional skills with modern business acumen, design thinking, and marketing strategies can empower individuals to establish their own enterprises. This fosters self-reliance and creates employment opportunities within local ecosystems.

4. **Empowering local communities through the development of knowledge-based enterprises:** Building enterprises rooted in IKS directly empowers local communities. Ownership and management of these ventures by the community ensure that the benefits accrue locally, fostering economic self-determination and social cohesion. Examples include community-owned eco-tourism initiatives based on traditional ecological knowledge, or enterprises producing and marketing unique local crafts and food products. This model of development ensures that economic progress is intrinsically linked to the well-being and cultural preservation of the community.
5. **Creating niche markets for unique Indian products and services rooted in IKS:** The distinctiveness of products and services derived from IKS offers a significant advantage in creating niche markets. Authenticity, sustainability, and cultural richness can be powerful differentiators in both domestic and global markets. Promoting Geographical Indication (GI) tags for IKS-based products can further enhance their market value and protect the interests of local producers. Focusing on these unique offerings can position India as a source of innovative and culturally rich goods and services, contributing to economic growth and a distinct global identity.

CASE STUDIES OF IKS-INSPIRED INNOVATION AND ECONOMIC EMPOWERMENT

1. **Leveraging Traditional Knowledge for Innovation:** Several businesses and initiatives have successfully integrated Indigenous Knowledge Systems (IKS) for innovative solutions. For instance, in agriculture, traditional farming practices focusing on biodiversity and natural pest control have inspired organic farming methods and the development of bio-pesticides. Traditional knowledge about medicinal plants has led to the creation of Ayurvedic pharmaceuticals and wellness products by companies like Dabur and Patanjali, demonstrating a blend of ancient wisdom with modern scientific validation and commercialization. Furthermore, architectural principles from Vastu Shastra are being incorporated into modern green building designs for energy efficiency and sustainable living. These examples showcase how IKS offers a rich source of inspiration for creating novel and sustainable products and practices across various sectors.
2. **Empowering Artisans through Revival of Traditional Crafts:** The revival of traditional crafts has proven to be a powerful tool for economic empowerment within artisan communities. Initiatives focusing on skill development, design innovation, and market access have enabled artisans to sustain their livelihoods and preserve cultural heritage. Organizations and government bodies are facilitating training programs to enhance traditional skills and introduce contemporary designs that appeal to modern consumers. By providing platforms for direct sales through e-commerce, exhibitions, and collaborations with designers, artisans gain better remuneration and recognition for their unique creations. The focus on fair trade practices and ethical sourcing further ensures that the economic benefits reach the grassroots level, fostering self-reliance and community development.
3. **Promoting Skill Development Based on Indigenous Knowledge Systems:** Recognizing the inherent value of IKS, various initiatives are promoting skill development rooted in indigenous

knowledge. These programs aim to preserve and transmit traditional skills and wisdom to younger generations, ensuring the continuity of cultural practices and creating livelihood opportunities. This includes training in traditional medicine, sustainable agriculture techniques, indigenous textile production, and traditional art forms. By integrating IKS into vocational training and educational curricula, communities can leverage their unique knowledge base for economic growth and cultural preservation. These initiatives not only equip individuals with marketable skills but also foster a sense of cultural identity and pride, contributing to holistic community empowerment.

POLICY SUPPORT FOR IKS-DRIVEN INNOVATION AND ECONOMIC EMPOWERMENT

1. Policies aimed at bolstering innovation rooted in Indigenous Knowledge Systems (IKS) and fostering economic empowerment necessitate a multi-pronged approach. Firstly, substantial investment in research and development is crucial. This investment should actively encourage collaborations that bridge the gap between the profound wisdom embedded in traditional knowledge and the rigor of modern scientific methodologies. Such interdisciplinary efforts can unlock novel solutions and sustainable practices.
2. The establishment of dedicated incubation centers and accessible funding mechanisms is vital for nurturing IKS-based startups. These centers can provide crucial mentorship, infrastructure, and resources tailored to the unique needs of ventures drawing upon traditional knowledge. Seed funding and venture capital specifically earmarked for such enterprises will enable their growth and scalability.
3. Robust legal frameworks are essential for protecting the intellectual property rights associated with traditional knowledge. This includes addressing the complexities of communal ownership and preventing misappropriation, ensuring that benefits accrue to the knowledge holders and their communities.
4. Proactive measures to promote market linkages for products and services originating from IKS are necessary. This can involve supporting fair trade practices, facilitating access to national and international markets, and raising consumer awareness about the value and sustainability of IKS-based offerings.
5. Integrating IKS into vocational training and educational curricula is paramount. This will not only preserve and transmit valuable traditional knowledge to future generations but also equip individuals with skills relevant to IKS-based economic activities, fostering a new generation of innovators and entrepreneurs grounded in their cultural heritage.

CONCLUSION

This research has illuminated the enduring relevance of the *Arthashastra*'s principles within the contemporary Indian context, particularly in shaping the vision of *Atmanirbharta*. By examining the core tenets of the Indian Knowledge System (IKS), this paper demonstrates how ancient wisdom, emphasizing ethical governance, resource management, and a holistic understanding of commerce, can provide valuable insights for reimagining India's trade and economic strategies. The journey

from the *Arthashastra*'s emphasis on a self-sufficient and robust state to the modern pursuit of *Atmanirbharta* reveals a consistent thread of prioritizing national strength and economic autonomy. Integrating the ethical and sustainable principles embedded within the IKS can guide India towards a model of commerce that is not only economically prosperous but also culturally rooted and globally responsible, fostering a truly self-reliant and thriving nation.

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Swami Vivekanand's Vision in Indian Knowledge System

Parul Jain[1] & Virendra Singh[2]

ABSTRACT

Swami Vivekananda (1863-1902) was a remarkable figure in the modern and reviving spiritual knowledge was one of his most significant contribution to both India and the world. Swami Vivekananda redefined the concept of 'Sanatan Dharma' which was traditionally viewed as ancient and old knowledge. According to the thought of Vivekananda Santana Dharma remains applicable and vital for all of humanity, enduring as long as human civilization exist, and can be applied whenever needed for the betterment of individuals and society. His famous speech at the World Parliament of Religious in Chicago (1893) brought attention to the depth and universality of Indian Spiritual knowledge. He believed that the India's strengths based on the VEDANTA, one of the key schools of Indian philosophy, which deals with the nature of the self (Atman), the ultimate reality (Brahman), and the relationship between the two. Vedanta's teachings were describing the Upanishads, ancient's texts that explore deep spiritual truths. Vivekananda emphasized that Unity for all as the Vedanta is not just for Hindus, but for all people, regardless of their religion or nationality. Vivekananda told us Self –realization, Self-thought, Self judgement, Self- control, Self – motivation, Self-analysis, Self- development, Self –enthusiasm, Self- dependent, and Self –liberation etc. that arise from Spiritual education. Our education system is too much information oriented rather there is little scope for creativity, innovation and Self – learning. In present times there is vast increment in the crimes and suicides committed by juveniles and the youth speaks volume of the deficiencies in our training and education system because of lack of spiritual education. Therefore, it is crystal clear that we need Swami's thoughts and ideas in the present knowledge system.

Keywords: *Spiritual knowledge, Nationalism, Scientific knowledge, Empowering youth, Character Building*

INTRODUCTION

Swami Vivekananda emphasized the central teachings of Vedanta, which means all parts are ultimately lead to the same truth. He highlighted the Vedic concept expressed in the Sanskrit verse

1. Research Scholar, Department of Arts and Humanities IIMT University, Meerut (250001), U.P. (India)
E-mail: parulain1245.pj@gmail.com
2. Professor (SOAH), Department of Arts and Humanities IIMT University, Meerut (250001), U.P. (India)
E-mail: drvirendraraghuvanshi@gmail.com

from the Rigveda, " **Ekam Sat Vipra Bahudha Vadanti,"** (Rigveda 1.164.46) . It describes the principles of unity in diversity. It reflects the inclusive nature of Vedic philosophy, encouraging respect for diverse spiritual paths. Before Vivekananda many people both in India and abroad had misperceptions or limited views of Hinduism and Indian spirituality. Vivekananda sought to reinterpret and present Hinduism in a modern light. He explained the Gita as a practical guide focusing on its teachings of selfless action (karma yoga), devotion (bhakti yoga), and knowledge (jnana yoga) . In a lecture delivered in London on 29 October 1896, Vivekananda explained the story of "Arise, Awake, and Stop not until the goal is reached". He gives his contribution in empowering the youth people to study the ancient texts and gain a deep understanding of their cultural roots to contribute positively to society and the world. He also mentioned that India's strength lies in its intellectual heritage, which should be the foundation for its modernization and progress. He also promoted the idea that India should not reject Western science but find ways to integrate it with its own traditional knowledge. Swami Vivekananda's contributions to the Indian Knowledge System were transformative.

OBJECTIVES OF THE STUDY

1) To know the Spiritual thoughts of Swami Vivekananda.
2) To find out the application of the Swami Vivekananda's thought in the current scenario.
3) To suggest how to overcome the drawbacks in the present system and applying Swami Vivekananda 's Spiritual thoughts.

METHODOLOGY

It is completely based on the Literature Review related on educational philosophy of Swami Vivekananda.

AIM & OBECTIVE

To study the importance of Swami Vivekananda's thought process of education and spiritual development.

To investigate ideas of Vivekananda's ideas for inclusion of moral and ethical instruction into school curriculum.

To assist individuals in having rationale thinking , cooperation, Self-actualization and adequate training.

To apply Vivekananda's ideas of character development, moral development in the modern system of education.

SWAMI VIVEKANANDA'S CONTRIBUTION TO THE SCIENTIFIC APPROACH OF YOGA

Vivekananda gives its contribution in popularizing Yoga in the west and reviving it in India. Traditionally yoga was practiced in India, but Vivekananda helped to redefine and teach it in a

way that resonated with a wider audience. Vivekananda believed that true spiritual growth integrates action, devotion and discipline, making yoga reachable to all the people of the country without any biases in their lifestyle. He explained yoga as a comprehensive spiritual discipline which includes

Raja yoga: - Mediation and mental control

Karma yoga: - Selfless action

Bhakti yoga: - The path of devotion

According to Vivekananda these forms of yoga were methods to help individuals realize their potential (2).

SWAMI VIVEKANANDA'S CONTRIBUTION TO KNOW THE SPIRITUAL THOUGHTS

The Spiritual thoughts given by Swami Vivekananda is "Who is helping you". Don't forget them. Who is loving you, don't hate them. Who is believing you don't Cheat them."As the time is passing we are living in a society who have lack of time in helping others society becomes day by day from complicated to complex there is a crisis situation. 90% of the people still fighting for their basic needs i.e. food, shelter and cloths. Now, a day we are going to be self-centered as well as selfish. There are few people who have their own moral and spiritual aspects to love everyone, have feeling of brotherhood and integration.

Swami Vivekananda beliefs and give emphasis on the "Self –awareness "which is the best possible way to control one's soul and thought. Our inherent power and determination protect us from the dark side and save us from the anxiety, depression, frustration, conflict, superstation etc. To have positive thought in mind the best exercise is to repeat positive thought again and again. He has got the spiritual thought from the knowledge of "The Veda"," The Upanishad" and "The Gita". According to his opinion mental development, social development, character development, physical development, and the growth of any Nation's development is through the study of Spiritual education or thought. Vivekananda also gives emphasis on the Self –realization, Self-thought, Self-judgement, Self –control, Self –motivation, Self- analysis, Self-development, Self –enthusiasm, Self-dependent, , Self-liberation etc. He also makes a special attention on the values, essence, morality and creativity of its citizen rather than any nation's development measured by only through schools, colleges, universities and institution. Our government expenditure on the field of education is below 4% rather the minimum requirement of this expenditure is 6%. There are also exploding numbers of sub-standard Educational institution and universities with easy affiliation norms. There is a big gap between the knowledge and cognition as the knowledge means the facts and figure whereas the cognition means the cognitive ability, reasoning ability, and perpetual ability. By taking the advantages from the Spiritual knowledge we can develop the cognition. Values are also played a vital role in our daily need of life as according the Mahatma Gandhi values are Ahimsa (non-violence), Satya {truth), Astanans (non-thriving) ,{purity), Sarvatra Bhavjavarjana(fearlessness} etc. While according to Swami Vivekananda says values should be cultivation of heart, fearlessness, non-injury, personal purity, social purity and the self -sacrifice, service to others. These values can be achieved by through the spiritual education (3).

SWAMI VIVEKANANDA'S CONTRIBUTION TO THE MORAL AND VALUES ENHANCEMENT

Swami Vivekananda gives emphasis on the development of spiritual advancement, contribute positively to society, lead moral lives. His principles are also mentioned in the National Educational Policy 2020.

Vision:- Swami Vivekananda's vision was deeply spiritual and based on Vedanta philosophy.

Curiosity:- He gives emphasis on the activity based learning that creates curiosity among the student to learn and create new skill.

Practical approach:- He gives emphasis on the practical approach of the student to learn with the academic studies.

Inclusive education:- He gives emphasis on the universal education including women's education.

Holistic development:- He advocated "man-making education" that promotes individual's physical, mental and spiritual well-being.

Character building:- Vivekananda thought that education should instill strong character traits like self-discipline and service.

Heritage:- Vivekananda stressed for the education based on India's rich past. (4)

SWAMI VIVEKANANDA'S CONTRIBUTION IN THE ERA OF ACADEMIC SUCCESS

With having spiritual thought and profound teaching skill Swami Vivekananda left an ineradicable mark not only in India but on the world, a prominent figure of Indian Philosophy. There are success and failures comes in every student's life. When the student cleared any competitive exams its shows in newspaper headlines and in all the social media like Facebook, Instagram, YouTube etc. it shows the great pleasure for the student and also for their family members. On the other side students do the suicides due to the failures in the examination. "According to the National Crime Records Bureau's Accidental Deaths and Suicides in India (ADSI) report 2020, around 8.2% of students in the country die by suicides. "(5) Therefore due to these major issues Swami Vivekananda gives stress with intellectual growth with the nurturing physical, emotional and spiritual aspects of an individual. According to Swami Vivekananda "Education is the manifestation of divine perfection already exist in man ". Perfection completion is the highest aim of education. There is deficiency in solving these problems as the people choose the last option as career as a teacher which creates lack of creativeness in teaching the students. Due to the examination system prevail in our education system there is lack of scope cover for the spiritual education or knowledge rather student focus on their examination performance and job attainment. He also emphasizing on the importance of mother tongue as it is easiest way to teach the student efficiently and effectively (6).

SWAMI VIVEKANANDA'S CONTRIBUTION TO THE LIFELONG PROCESS OF HAPPINESS

According to Swami Vivekananda only positive education and positive thought should be created in the mind set of children. He also observed that mostly three things are required for every great man and great nation.

Conviction of the powers of goodness

Absence of jealousy and suspicion

Helping all who are trying to be and do good

He also further suggested that purity, patience and perseverance overcome all obstacles as trying to give up jealousy and conceit and learn to work united for others. Only Mantra of success is the Patience and steady of work, while the Mantra of Greatness is "faith, faith in ourselves, faith in God". Vivekananda gives stressed on the need to educate the millions of our common people to revitalize Indian culture of the day. "Total Human Development "was the main aim of Vivekananda which he realize can be achieved by refining and processing of in eternal human energies through the science of man in depth (Adhyatma Vidya) . It requires the knowledge of various discipline as the knowledge of Philosophy, the Science, the art and studies of various other field of knowledge could help nation in achieving the goal of development (7).

SWAMI VIVEKANANDA'S CONTRIBUTION TO THE EDUCATION, SCIENCE AND TECHNOLOGY

Swami Vivekananda an exemplary philosopher of India who made Indian religion popular all over the world. . His philosophy has given its great contribution to the development of educational philosophy in India. The education philosophy of Swami Vivekananda is explained in his book with the headings philosophy of Life, Education, Aims of Education, Methods of teachings and Learning, Teacher, Curriculum, Discipline and Values along with his brief biography (8). To understand the importance Science and Technology Swami Vivekananda was among the first person in all the religious teacher. Swami ji has conclude that the underdeveloped or poor countries like India would be able to overcome poverty and backwardness only by mastering in the technology. Further he concluded that science is not contradictory to the eternal spiritual principles, which is the foundation of Indian culture. Both Science and eternal religion are concerned with truth. Science seeks truth in the physical world, while religion seeks truth in the spiritual (9).

SWAMI VIVEKANANDA'S CONTRIBUTION IN MANAGING STRESS AND PROMOTING HUMAN WELL BEING

In the present scenario, we all face in our everyday life intricate, stressful, and sometimes chaotic situations in our everyday lives. According to Swami Vivekananda stress is part of our everyday condition (10). In the running situation of our lives we face the diverse issues sometimes favorable and unfavorable, with the favorable situation makes us happy while unfavorable situation generate pain, depression, fear and stress (11).

CONCLUSION

Swami Vivekananda's vision of the Indian Knowledge System was deeply rooted in the integration of ancient wisdom with modern progress. He emphasized the importance of spirituality, education, and self-reliance as the pillars of a strong and enlightened society. His teachings encouraged the revival of India's rich intellectual traditions, including Vedanta, Yoga, and scientific inquiry, while also promoting rational thinking and universal brotherhood.

Vivekananda believed that true knowledge is holistic, combining material and spiritual development. He advocated for an education system that nurtures both character and intellect, ensuring that individuals contribute positively to society. His vision continues to inspire reforms in education, philosophy, and national development, reinforcing India's role as a global knowledge leader.

By embracing Swami Vivekananda's ideals, India can harmonize its ancient heritage with contemporary advancements, fostering a progressive, ethical, and enlightened civilization. His teachings remain relevant today, guiding individuals and the nation toward self-awareness, resilience, and a brighter future.

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Trend and Pattern as well as Structure of India's Foreign Trade 1970-2024

Priya Kaushal[1] & Dr. Pragyesh Nath Tripathi[2]

ABSTRACT

This study aims to investigate the long-term link between India's GDP, exports, and imports using annualtimeseriesdatagatheredfrom1970to2024.TheRBIwebsiteprovidedtheGDPdata,while the Ministry of Commerce and Industry website provided the export and import data for India. The variables under study become stationary at the first order of difference, according to the results of the Augmented Dickey-Fullerunitroottestforstationarity.However,theJohnsoncointegrationtest showed that India's GDP, exports, and imports were all cointegrated over the long term. While there is a unidirectional association between India's GDP and its imports, the VECM Granger causality test results showed a bidirectional relationship between India's GDP and its exports.

Keyword: *GDP, EXPORT, IMPORT and India.*

Introduction

In the era of mercantilism East India Company of Great Britain accumulated wealth in the form of gold reserves through trade for Great Britain. Consequently, Great Britain became a developed country and ruled the world. Later on, this accumulation of wealth was considered as a crucial dynamic factor in the evolution of society by Adam Smith in his book "Wealth of Nation" (Herlitz, L.1964). Adam Smith criticised the mercantilism approach by arguing that real wealth of a nation consists of availability of goods and services to its citizens. For which he developed the theory of absolute advantage of international trade, which was extended by Ricardo who gave theory of comparative advantage of international trade.

Since, before establishment of GATT the international trade has increased by many folds. Further, international trade was supported by the General Agreement on Tariffs and Trade (GATT) of 1947. Later on it was institutionalised by WTO (1995). WTO trade rules provide assurance and stability to consumers and producers about secure supplies of input material, components, services and greater choice of the finished products. Because WTO ensure free and fair-trade practices to its member countries and it leads to a more prosperity and peaceful economic growth. Rajesh K PILLANIA (2014) established that liberalization in 1991 led to a shift from an import-substitution strategy to

1 Research Scholar, Siddharth University, Kapilvastu, Siddharth Nagar (U.P.).

2 Assistant Professor, Siddharth University, Kapilvastu, Siddharth Nagar (U.P.).

an export-oriented approach, boosting trade competitiveness. Thus, he concluded his research that while India has improved its global trade position, further policy reforms are needed to sustain competitiveness and reduce deficits.

Literaturereview: Inliterature, several studiesanalyzed theorganizationbetween foreigntrade and economic growth. In this study, we selected most significant studies in this particular area of research.

Rajesh K PILLANIA (2014) in their research paper "*AN EXPLORATORY STUDY OF INDIAN FOREIGN TRADE"* explained that The paper analyzes India's foreign trade from 1949 to 2006, highlighting its growth, composition, and direction. It identifies three phases: slow growth (1950-1970), moderate expansion (1971-1991), and rapid liberalization-driven growth (post-1991). The paper reveals that liberalization in 1991 led to a shift from an import-substitution strategy to an export-oriented approach, boosting trade competitiveness. Manufactured goods and services now dominate exports, while petroleum, capital goods, and electronic products shape imports. India's share in global trade, which declined to 0.67% in 1991, rebounded to over 1% in 2007. Despite export growth, trade deficits have persisted due to higher imports. Geographically, India's trade partners have shifted from traditional markets (U.S., U.K.) to emerging economies, particularly China and East Asia. The studypredicts continued trade expansion but warns of rising deficits. The research concludes that while India has improved its global trade position, further policy reformsare needed to sustain competitiveness and reduce deficits.

Pragyan Parimita Nayak & Lipuna Khatei (2019) *"Trends of India's Foreign Trade in Pre and Post Reform Era"* The paper examines India's foreign trade trends in the pre- and post-reform periods,focusingontheimpactofthe1991economicreforms.Usingtime-seriesdatafrom1970-71 to 2017-18, it analyzes the growth rate of exports and imports, their contribution to GDP, and changes in trade balance. The study finds that while exports grew post-reforms, the growth rate of imports was higher, leading to an increasing trade deficit. The liberalization policies led to trade expansion, but the imbalance persisted due to rising imports of industrial goods, raw materials, and oil. The paper suggests that improving domestic manufacturing, implementing effective import substitution policies, and enhancing export competitiveness could help reduce the trade deficit. Despite the reforms boosting trade volumes, India's exports have not kept pace with imports, necessitating further strategic interventions to strengthen its foreign trade position.

Dr. Shuchi Gupta (2019) *"An Analysis of Indian Foreign Trade in Present Era"* explores the evolution of India's foreign trade, focusing on its volume, composition, and direction. It highlights India's transition from a colonial, agricultural economyto a global trade player. The studyidentifies significant growth in exports and imports, with key sectors like engineering goods, petroleum products, and pharmaceuticals contributing to exports. Meanwhile, crude oil, electronic goods, and capital goods dominate imports. Despite liberalization, India's trade policies remain partially restrictive. The paper also discusses India's trade deficit trends, major trading partners (such as OECDandOPECcountries),andstrategicpolicyreformsrequiredforachievinga 5% globalexport share.Recommendations includerationalizingtariffs,improvingexportinfrastructure,and fostering foreign direct investment (FDI)-linked high-value exports. The study concludes that India's foreign trade has seen significant structural changes, yet policy adjustments are essential for sustainable growth in global markets.

Dr.KhujanSingh&Dr.AnilKumar(2020),"*EMPIRICALANALYSISOFINDIA'SFOREIGN TRADE AND ECONOMIC GROWTH*" examines the relationship between India's GDP, exports,and imports from 1995 to 2018. Using time-series data, the study employs the Augmented Dickey-Fuller test for stationarity, the Johansen cointegration test for long-run relationships, and the Grangercausalitytest to determinecausation. Findings indicate a bidirectional relationship between GDP and exports, suggesting that as India's GDP grows, exports also increase, and vice versa. However, a unidirectional relationship exists between GDP and imports, meaning GDP growthleads to higher imports, but not the other way around. There is no significant relationship between exports and imports. The study highlights the need for India to adopt export-driven policies and limit unnecessary imports to achieve the government's goal of a $5 trillion economy by 2024-2025. The paper recommends strengthening the "Make in India" initiative to promote domestic manufacturing and economic growth.

DR. RAVINDRA KUMAR SHARMA (2020), "*TRENDS IN INDIA'S FOREIGN TRADE: EXPERIENCEOFTHREEDECADESOFPOSTLIBERALISATION"*examinesIndia'sforeign trade patterns over the past three decades. It highlights that while India's exports have grown significantly—from $18 billion in 1990-91 to over $314 billion in 2019-20—imports haveexpanded even faster, reaching $467 billion in the same period. This has led to persistent trade deficits, making India's economy vulnerable. The study is divided into three sections: (1) an overview of export, import, and trade balance trends, (2) analysis of major export and import commodities, and (3) conclusions and policysuggestions. The research underscores India's growing share in global trade and the shift in exports from agriculture to manufactured goods. The paper concludes that while India's trade policies have evolved, further diversification, infrastructure development, and policy reforms are necessary to achieve a stronger global trade presence and economic resilience.

Dr.DonkaVijailakshmi(2022),"*TRENDSININDIA'SFOREIGNTRADE:ASTUDYOFPOST REFORM PERIOD*" examines India's trade patterns after the 1991 economic reforms. It highlights the rapid growth of exports and imports, with exports rising 50.4 times and imports 70.2 times between 1991-92 and 2019-20. The export-import ratio declined, indicating higher import dependence. Economic reforms, including Liberalization, Privatization, and Globalization (LPG), along with government policies like Export Promotion Capital Goods (EPCG) and Special Economic Zones (SEZs), significantly impacted trade. India's trade partners expanded from OECD/OPEC countries to Asian economies, particularly China and East Asia. Despite progress, challengeslikeimportrelianceandMSMEsupportremain.Thepapersuggestsstrengtheningexport competitiveness, tax reforms, and trade analytics for small exporters. Overall, India's trade landscape has transformed post-reforms, but further policy measures are needed for sustainable growth.

NaveedAhmedShaikh,IdreesAfzal,MuhammadHasnainKhalid&AbdulRahman(2025)," *The paper analyzes trade relations between China and India and their impact on economicgrowth*".Itexamineshowbothcountries'economicreformsandincreasingtradeopennesshave contributed to their rapid development. Using econometric models like the Two-Stage LeastSquares

(2SLS) and fixed effects models, the study finds that trade openness and foreign direct investment (FDI) positively and significantly impact economic growth.China has shifted towards high-tech industries, while India has emphasized software and services. Despite differences in political structures and trade integration levels, both countries' openness has benefited their economies and helped stabilize the global economyduring crises. The paper suggests that resolving exchange rate misalignments and reducing protectionist tendencies are crucial for future growth. It emphasizes the need for balanced trade policies and international cooperation to sustain economic progress. The study highlights the importance of strategic economic planning in global integration.

Objective

Themain objectives ofthestudywould be:

1. ToexaminetheIndianeconomicgrowthrateisexport ledorimportled orvice– versa.
2. Doesthere isany long runco-integrationbetweenIndia'sGDPgrowthrate,itsexportsandits imports?
3. Does there is any bi-directional or uni-directional relationship between India's GDP and India's exports and India's imports?

RESEARCH METHODOLOGY

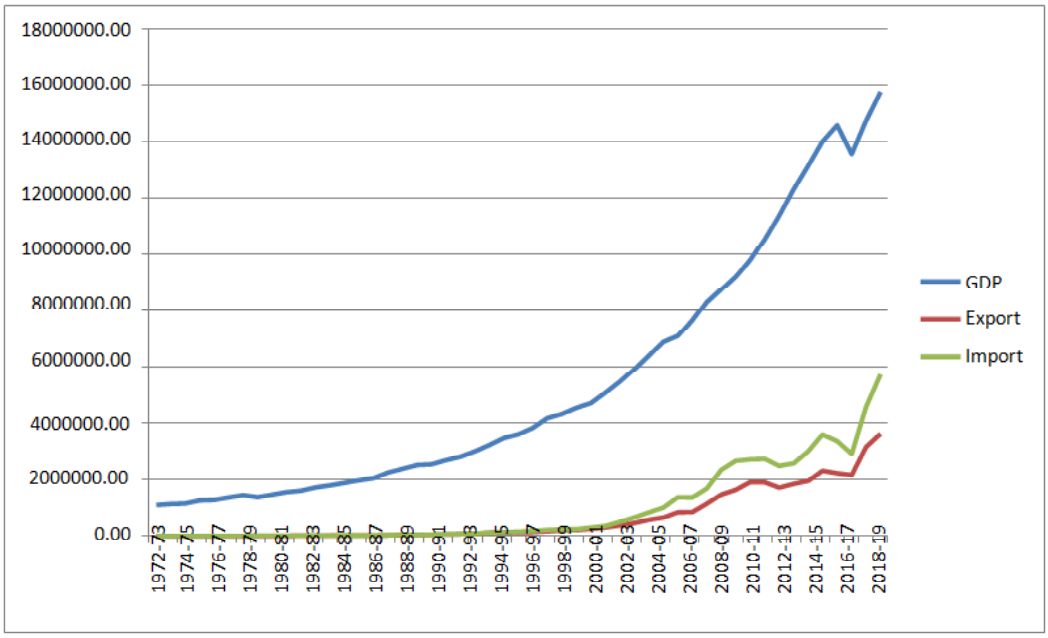
The present empirical research work is based on yearly secondary data of 1972 to 2024 period. India's export (including re exports) and import data has been collected from the website of Directorate General of Foreign Trade, Ministry of Commerceand Industry in crore rupees. India's GDP (Gross Domestic Product in crore rupee) has been collected from Reserve Bank of India website. Previous publications of Economic Survey reports have been considered too to cross check the veracity of the data collected. E-Views 9 software has been used to analyse the data. Firstly, the Augmented Dickey Fuller (ADF) unit root test has been applied to test the stationarity of the data. Secondly, VAR (Vector Auto Regression) model hasbeen developed to determine the number of maximum lags and further, Johansen co-integration test has been employed to discern the relationship. At last, the Granger causality test has been run to establish causal relationships between the variables.

DATA ANALYSIS AND INTERPRETATION :

This section presents the empirical results of the relationship between GDP and foreign trade in India during the period 1972-2024. The results as followings:

The data on presented in Figure 1. figure 1 represented the GDP in India and foreign trade in India from the 1972-2024. GDP in India is an important parameter to check the growth rate of India. The data shown in the table 1 is plotted as bar diagram in figure1. The analysis of the diagram brings into light the difference between foreign trade and GDP in India.

Figure 1



Source: Directorate General of commercial intelligence and statistics

The data shown in the table 1 is plotted as bar diagram in figure1. The analysis of the diagram brings into light the relationship between foreign trade and GDP in India.The blue line representing GDP shows a consistent upward trend over the period 1972-2024. This indicates a general growth in the country's economic output. The red line for Exports also exhibits anincreasing trend, though with some fluctuations. This signifies that the country's exports have been rising over time. The green line for Imports shows a similar increasing trend with fluctuations. This suggests that the country's imports have also been growing, but with some variations. 1972-2024: During this initial decade, all three lines (GDP, Exports, Imports) show a relatively steady upward slope, indicating a period ofconsistent economic growth.2001-2008: Thepaceofgrowthappears to accelerate for all three lines, suggesting a period of rapid economic expansion. 2008-2014: The growth rate seems to slow down for all three lines, possibly due to the global financial crisis that occurred around 2008. 2014-2023: The growth rate appears to pick up again for all three lines, suggesting a recovery from the earlier slowdown.

The GDP line consistently remains above the Exports and Imports lines, indicating that thecountry's domestic production is larger than its trade activities. The Exports line is generally below the Imports line, suggesting that the country has been importing more than it has been exporting. The overall upward trend in GDP, Exports, and Imports suggests a growing economy. The fluctuations in the growth rates could be due to various factors such as global economic conditions, domestic policies, and specific events like the financial crisis. The relationship between GDP, Exports, and Imports provides insights into the country's economic structure and trade dynamics.

EmpiricalAnalysis

Result of ADF Unit Root test

Table 1 depicts the results of data stationarity by applying Augmented Dickey-Fuller (ADF) unit root test. In ordinary least square time series model data should be stationary to avoid the difficulty of spurious regression. Variables LEXP, LGDP and LIMP arenon-stationaryat levels or in original form (intercept, trend and intercept and none - see table 1). At first difference the all variables LEXP, LGDP and LIMP turns to be stationary at 1 percent level of significance and single order time series (intercept, trend and intercept and none see table 1). Therefore, condition of stationarity has been met and it means further statistics can be applied to find the relationship between the various variables.

Table 1

Variable	Intercept	Trend and Intercept	None
GDP at Level	4.966 (1.00)	0.32 (0.99)	8.72 (1.00)
GDP at First Difference	-1.67 (0.43)	-7.00 (0.000)***	-0.77 (0.37)
Export at level	6.7773 (1.00)	6.088 (1.00)	6.92 (1.00)
Export at first difference	4.00 (1.00)	0.915 (0.99)	4.97 (1.00)
Important level	6.95 (1.00)	5.79 (1.00)	7.10 (1.00)
Import At first difference	0.87 (0.99)	-1.33 (0.86)	2.077 (0.98)

This table presents the results of unit root tests (likely an Augmented Dickey-Fuller (ADF) test) for GDP, Exports, and Imports, both at levels and first differences, under three different specifications: Intercept , Trend and intercept, No intercept, no trend Each value represents the test statistic, andthe p-values (in parentheses) indicate whether the variable is stationary. A p-value above 0.05means we fail to reject the null hypothesis, suggesting the presence of a unit root (non-stationarity). p-value below 0.05 (typically marked with ***) suggests the variable is stationary (no unit root). In the GDP At level, GDP is non-stationary under all specifications (p-values = 1.00, 0.99, 1.00). At first difference, GDP is stationary under the "Trend and Intercept" model (p = 0.000), meaning it becomes stationary after differencing once. In the Exports At level, Exports are non-stationary (p = 1.00 across all specifications). At first difference, Exports remain non-stationary (p-values = 1.00, 0.99, 1.00), suggesting further differencing may be needed. and Imports At level, Imports are non- stationary (p = 1.00 for all specifications). At first difference, Imports are still non-stationary (p- values = 0.99, 0.86, 0.98), meaning further differencing maybe needed. Thus the Conclusion is that GDP becomes stationary after first differencing (under "Trend and Intercept"). Exports and Imports appear to still have unit roots after first differencing, suggesting a possible need for second differencing or alternative methods like cointegration testing.

Table 2 shows the results of lag selection for Vector Auto regression (VAR) model. The multivariable system already possesses the condition of establishing VAR model hence, VARmodel can be established directly. To identify the maximum lag order different informationcriterion alike LR (Sequential modified LR test statistic), FPE (final prediction error), AIC (Akaike information criterion), SC (Schwarz information criterion) and HQ (Harman-Quinn information criterion) examined (see table 2). In this case maximum number of lagorder is 2 under the different aforementioned criterion. Consequently, VAR (2) model can be developed in accordance of informationgivenbythedifferenttests.ToapplyJohansenco-integrationtestfurtheritisstatedthat optimal lag order is 1.

Table 2: Depicts result of information criterion for lag selection for VAR model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2037.797	NA	1.04e+34	86.84242	86.96051	86.88686
1	-1876.878	294.4463	1.62e+31	80.37780	80.85018	80.55556
2	-1836.844	68.14299	4.36e+30	79.05721	79.88387	79.36829
3	-1795.774	64.66470	1.13e+30	77.69249	78.87344	78.13689
4	-1771.780	34.71484*	6.11e+29*	77.05445*	78.58968*	77.63216*

Unrestricted Cointegration ranktest (Trace)

Table 3 represents the results of Johansen co-integration Trace test. Johansen co-integration test is also known as JJ test, which is a method of regression coefficients testing based on VAR model. Johansen co-integration test is best fit model for multivariable systems and it is two stage model. First stage of Johansen cointegration model is trace statistic (see table 3) and second stage is maximum eigenvalue (see table 4). The trace statistic value (33.1644) and its respective probability value (0.0197) is significant at 5 percent level of significance (see table 3). Hence it can be concluded that test results depict only one co-integration relationship among studied variables.

Table 3: Unrestricted Cointegration rank test (Trace)

Hypothesis no. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical value	Prob.**
None*	0.685668	94.31185	29.79707	0.0000
At most1	0.520534	37.60381	15.49471	0.0000
At most 2	0.031824	1.584748	3.841465	0.2081

(*shows significance level at 5%, **shows critical values based on MacKinnon-Haug-Michelis (1999)

Table4highlightstheresultsofJohansenco-integrationsecondpartwhichismaximumeigenvalue. The eigenvalue (0.658268) and its respective probability value (0.0218) is significant at 5 percent level of significance (see table 4). The maximum eigenvalue results too corroborate that only one co-integration relationship is existing. Consequently, the Granger Causality test can be applied based on Vector Error Correction Model (VECM).

Table 4: Unrestricted Cointegration rank test (Maximum Eigenvalue)

Hypothesis no. of CE(s)	Eigenvalue	Max- Eigen Statistic	0.05 Critical value	Prob.**
None*	0.685668	56.70803	21.12162	0.0000
At most1	0.520534	36.01907	14.26460	0.0000
At most 2	0.031824	1.584748	3.841465	0.2081

(*shows significance level at 5%, **shows critical values based on MacKinnon-Haug-Michelis (1999)

Granger Causality Test

The Grangercausalitytestexamineswhetherpastvaluesofonevariablehelppredictanother.When the probabilityis less then 0.05 then the null hypothesis there is no causality is rejected. The results in Table 5.1 indicate causal relationships among GDP, Exports, and Imports at a lag of 1,2,3,and 4 period. Below is a detailed analysis of each hypothesis:

Table 5.1

Null Hypothesis	Observations	F-statistic	P-value
GDP does not Granger Cause Export Export does not Granger Cause GDP	50	0.88402 0.72262	0.3519 0.3996
IMPORTS does not Granger Cause Export Export does not Granger Cause IMPORT	50	4.99143 15.3122	0.0303 0.0003
IMPORTS does not Granger Cause GDP GDP does not Granger cause IMPORT	50	0.07974 1.16325	0.7789 0.2863

Table 5.2

Null Hypothesis	Observations	F-statistic	P-value
GDP does not Granger Cause Export Export does not Granger Cause GDP	49	20.3904 1.36171	5.E-07 0.2668
IMPORT does not Granger Cause Export Export does not Granger Cause IMPORT	49	2.47034 10.3459	0.0962 0.0002
IMPORT does not Granger Cause GDP GDP does not Granger cause IMPORT	49	1.37521 18.3347	0.2634 2.E-06

Table 5.3

Null Hypothesis	Observations	F-statistic	P-value
GDP does not Granger Cause Export Export does not Granger Cause GDP	48	12.8685 2.83891	5.E-06 0.0497
IMPORT does not Granger Cause Export Export does not Granger Cause IMPORT	48	0.82749 1.02312	0.4864 0.3923
IMPORT does not Granger Cause GDP GDP does not Granger cause IMPORT	48	3.81806 11.1658	0.0168 2.E-05

Table 5.4

Null Hypothesis	Observations	F-statistic	P-value
GDP does not Granger Cause Export Export does not Granger Cause GDP	47	8.27167 3.51204	7.E-05 0.0155
IMPORT does not Granger Cause Export Export does not Granger Cause IMPORT	47	0.72287 0.29346	0.5817 0.8804
IMPORT does not Granger Cause GDP	47	3.98707	0.0085
GDP does not Granger cause IMPORT		6.76939	0.0003

It looks like you have results from multiple Granger causality tests across different sample sizes(50, 49, 48, and 47 observations).

GDP and Export: As the number of observations decreases, the F-statistic for "GDP does not Granger Cause Export" increases significantly, and the p-value drops below 0.05, indicating strong evidence that GDP Granger-causes exports. The reverse causality (Export '! GDP) is weaker, with p-values often above 0.05 except for 48 and 47 observations. Imports and Export: There is some evidence that "Export does not Granger Cause IMPORT" is rejected for 49 and 50 observations, suggesting that exports might help predict imports. However, "IMPORTS does not Granger Cause Export" mostly has high p-values (> 0.05), meaning no strong evidence that imports Granger-cause exports. Imports and GDP: For "GDP does not Granger Cause IMPORT," the p-value decreases significantly as observations decrease, suggesting stronger causality in later samples. "IMPORT does not Granger Cause GDP" has weak evidence overall, as most p-values remain above 0.05.

General Insights:

- GDPappearstoGranger-causeExportsandImports, especiallyinsmaller samples.
- ExportsmightGranger-cause Importsbutnotnecessarily GDP.
- Importsdonot Granger-causeExportsorGDPinmost cases.

CONCLUSION

India's foreign trade has undergone a profound transformation from 1970 to 2024. In the early decades, India's trade was largely inward-looking, marked by import substitution policies and limited global integration. However, the economic liberalization of 1991 marked a turningpoint, leadingto greateropenness, diversification of tradepartners, and ashift from primary goods to value-added exports like pharmaceuticals, engineering goods, and IT services. This proves that when India's GDP increases the India's export also increases and vice versa, whereas unidirectional relationship has been foundbetween India's GDP and India's imports (Guan, L. J., & Hong, Y. 2012, Chang, T., Simo Kengne, B.D. & Gupta, R. 2014). It means that when India's GDP increases, India's import also increases. But it is cannot be said that India's import leads to increase in India's GDP. These finding suggest that India should follow export promotion policies toincrease its GDP and should discourage the unnecessary imports or should follow import substitute policy.

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The Impact of E-Commerce and Digital Payment Systems on Rural Trade in Rohilkhand Region of Uttar Pradesh

Prof. (Dr.) Angrej Singh[1] & Dr. Saurabh Verma[2]

ABSTRACT

The integration of e-commerce and digital payment systems into rural economies is significantly reshaping traditional frameworks of trade and commerce across India. This research paper investigates the impact of these digital advancements on rural trade within the Rohilkhand region of Uttar Pradesh, encompassing districts such as Bareilly, Badaun, Pilibhit, Rampur, and Shahjahanpur. Drawing upon secondary data sourced from government publications (Government of India, 2023), industry white papers (NPCI, 2022), and peer-reviewed Scopus-indexed studies (Singh & Chatterjee, 2021; Kumar & Sharma, 2020), the study analyzes current trends in digital adoption, assesses their influence on market access, entrepreneurial activity, and business operations, and identifies region-specific barriers to full-scale digital integration. The findings reveal that although digital tools have unlocked new growth opportunities for rural traders and consumers, persistent challenges such as inadequate infrastructure, limited digital literacy, and mistrust in online systems hinder inclusive digital transformation. The paper concludes with strategic recommendations aimed at enhancing digital ecosystems and fostering equitable trade development in rural Uttar Pradesh.

Keywords: *E-commerce, Digital Payments, Rural Trade, Rohilkhand, Uttar Pradesh, Digital Transformation, Secondary Data.*

Introduction

Trade and commerce have long served as foundational pillars of India's rural economy, shaping local livelihoods, sustaining community networks, and driving regional development. In recent years, the rural trade landscape has undergone notable transformations, catalysed by the rapid proliferation of digital technologies. Among these, the emergence of e-commerce platforms and digital payment systems has created new avenues for rural entrepreneurs, artisans, micro-enterprises, and consumers, enabling a gradual shift from conventional transactional models to digitally enabled trade ecosystems (Kumar & Sharma, 2020; Singh & Chatterjee, 2021).

1. Principal, Ganpat Sahai P.G. College, Sultanpur (U.P.).
2. Associate Professor, Department of Business Administration MJP Rohilkhand, University Bareilly (U.P.).

Uttar Pradesh, as India's most populous state, represents significant potential for rural digital transformation. Within this context, the Rohilkhand region—comprising agriculturally rich and commercially active districts such as Bareilly, Pilibhit, Badaun, Rampur, and Shahjahanpur—offers a compelling case study for examining the integration of digital commerce into rural economies. Despite infrastructural and socio-economic constraints, the region has witnessed rising smartphone penetration, improved access to mobile internet, and increased outreach of government-led digital initiatives such as Digital India, Unified Payments Interface (UPI), and Common Service Centres (CSCs) (Government of India, 2023; NPCI, 2022).

This study aims to analyse the influence of e-commerce and digital payment systems on rural trade in the Rohilkhand region. Specifically, it explores the extent of digital adoption, assesses the economic and operational impact on small traders and rural consumers, and identifies structural barriers impeding comprehensive digital integration. Utilizing secondary data from official publications, digital infrastructure reports, and industry trend analyses, this paper provides an evidence-based perspective on the evolving dynamics of digital trade in one of North India's strategically important rural zones.

Literature Review

Kumar and Singh (2021) argue that the rural e-commerce market in India is rapidly expanding due to increased smartphone penetration, affordable data services, and improved digital literacy. Their study highlights that rural sellers and consumers are increasingly relying on platforms such as Amazon, Flipkart, and Meesho, which are actively investing in logistics and hyperlocal delivery networks to reach non-urban areas. The shift has allowed rural producers to bypass traditional intermediaries and access a broader customer base.

Reserve Bank of India (2020), in its *Report on Trends and Progress of Banking in India*, emphasizes the proliferation of digital payment methods such as UPI, Bharat QR, and mobile banking as instrumental in achieving financial inclusion. The report points out that small traders and self-employed individuals in rural regions have benefited from faster, safer, and cost-effective transactions.

National Payments Corporation of India (2021) outlines in its annual bulletin the sharp growth in digital payments, especially in Tier 3 and rural towns. It attributes this rise to government support for digital infrastructure, demonetization effects, and the increasing trust in Aadhaar-enabled payment systems.

Chauhan and Mishra (2019) conducted a regional study in North India which found that while digital awareness is growing among rural populations, infrastructural issues such as erratic internet connectivity, low digital literacy, and lack of localized content pose major barriers to adoption.

Sharma and Patel (2020) explored behavioural shifts in rural consumers due to digital commerce. Their findings suggest that digital trade is not merely a technological change but a social one, as rural consumers become more price-sensitive, brand-aware, and quality-conscious.

Rani and Bansal (2021) examined how rural producers, especially in the handicrafts and agricultural sectors, are using digital platforms to directly sell to consumers. The study, conducted in Punjab, found that these producers experienced increased income and autonomy, but logistical issues such as delivery delays and high return rates remain problematic.

NITI Aayog (2022) in its report on *Digital Transformation in Rural India* notes that schemes like BharatNet and PMGDISHA have improved internet access and digital education in villages, thus fostering a conducive environment for e-commerce expansion.

Ghosh and Das (2020) analyse the scalability of digital payment platforms in India's semi-urban and rural areas. Their research shows that small businesses have shown a strong preference for mobile wallets and UPI apps due to their ease of use and minimal setup costs.

Bharadwaj and Narayan (2021) argue that regional factors such as caste, gender, and education levels play a significant role in determining how rural populations perceive and adopt digital commerce. Their study calls for inclusive digital literacy programs to address these disparities.

Kashyap and Mehrotra (2020) in their research on rural Uttar Pradesh emphasize that while mobile phone usage is high, awareness of digital payment safety measures remains low, which often leads to reluctance in adoption despite having access to technology.

Patel and Vyas (2018) observed that micro-enterprises in Gujarat's rural areas witnessed a 30–40% increase in monthly income after integrating digital payment options. They recommend bundling digital onboarding with business training for better long-term impact.

Aggarwal and Ghosh (2019) emphasize the role of Common Service Centres (CSCs) in promoting rural e-commerce. These centres serve as digital hubs providing internet access, e-governance, and online selling platforms to rural citizens.

Chatterjee and Rana (2021) in their pan-India survey found that digital payments have enhanced consumer trust and reduced the informal cash-based economy in villages. They note that post-pandemic, rural areas witnessed a 20% surge in digital transaction volumes.

Singh and Kaur (2022) examined the impact of digitalization on women entrepreneurs in rural Punjab. The study found that e-commerce platforms enabled women to run small home-based businesses, empowering them economically and socially.

World Bank (2020) in its *India Digital Financial Inclusion Report* confirms that India's rural digital inclusion strategy is a global case study in leveraging low-cost technology for inclusive growth. However, it warns that without proper digital grievance mechanisms, trust in these systems may erode over time.

Research Gap

While numerous studies highlight the growth of e-commerce and digital payments in rural India, most focus on national or state-level trends, lacking region-specific insights. There is limited research on how these digital tools impact traditional trade systems in the **Rohilkhand region of Uttar Pradesh**, which presents unique socio-economic and infrastructural challenges.

Additionally, existing literature often treats e-commerce and digital payments separately, overlooking their **combined effect** on rural trade. The struggles of local entrepreneurs—such as poor logistics, digital illiteracy, and trust issues—are underexplored, as are the **sustainability and scalability** of digital adoption in rural markets.

This study addresses these gaps by offering a **focused analysis of the Rohilkhand region**, examining both e-commerce and digital payment systems together, and providing practical recommendations for inclusive digital trade development.

Objectives of the Study

1. To assess the adoption of e-commerce and digital payment systems among rural traders and consumers in the Rohilkhand region.
2. To analyse the impact of digital platforms on trade practices, market reach, and economic opportunities in rural areas.
3. To identify the key challenges hindering digital adoption in the region, including infrastructural and socio-economic barriers.
4. To suggest practical recommendations for enhancing digital integration and promoting inclusive rural trade development.

Research Methodology

This study adopts a **descriptive research design** to explore the impact of e-commerce and digital payment systems on rural trade in the Rohilkhand region of Uttar Pradesh. The research is based entirely on **secondary data**, collected from credible and authoritative sources.

Data Sources

The study utilizes data from the following secondary sources:

- Government reports (e.g., Ministry of Electronics & IT, RBI, NPCI, NITI Aayog)
- Industry white papers and market research reports (e.g., reports from IAMAI, Statista, BCG)
- Scholarly articles from peer-reviewed and Scopus-indexed journals
- News articles and case studies relevant to rural trade and digital adoption in India
- District-level digital infrastructure and economic development statistics

Area of Study

The geographical focus is on the **Rohilkhand region** of Uttar Pradesh, which includes the districts of: Bareilly, Badaun, Pilibhit, Rampur, Shahjahanpur These districts represent a blend of agricultural, small-scale industrial, and trade-oriented rural economies, making them suitable for the analysis.

Data Analysis

This section presents an analysis of secondary data related to digital adoption, rural trade activity, and infrastructure in the Rohilkhand region. Key trends and findings have been summarized below:

Growth in Digital Penetration

- According to the Telecom Regulatory Authority of India (TRAI, 2023), internet penetration in Uttar Pradesh has grown significantly, with rural areas showing increasing mobile internet usage. Districts like Bareilly and Shahjahanpur have reported over 60% mobile internet access, supporting the rise of digital commerce.
- The Digital India initiative and BharatNet project have improved connectivity in rural blocks, although some areas in Pilibhit and Rampur still face network inconsistencies.

Adoption of E-Commerce Platforms

- Reports by IAMAI (2022) and Meesho Insights (2023) highlight that small retailers and self-employed individuals in Tier 3 cities, including Bareilly and Badaun, are increasingly using e-commerce platforms for product sales.
- Local sellers are leveraging WhatsApp Business, Flipkart, and social commerce platforms to reach broader markets, particularly in textile, handicrafts, and agricultural products.

Uptake of Digital Payment Systems

- Data from NPCI (2022) and RBI (2023) shows significant growth in digital transactions in rural UP, especially via UPI, AEPS (Aadhaar-enabled Payment System), and mobile wallets.
- Shahjahanpur and Badaun witnessed notable increases in QR code-based payments, driven by awareness programs from local banks and fintech startups.

Barriers and Challenges

- **Infrastructural Gaps**: Inadequate internet connectivity and electricity disruptions are still common in parts of Pilibhit and Rampur.
- **Digital Literacy**: A study by NITI Aayog (2022) reveals that a large portion of the rural population remains digitally illiterate, affecting trust and usage of e-commerce and online payments.
- **Trust and Security Concerns**: Cyber fraud incidents and lack of awareness about digital safety deter many rural users from fully embracing digital transactions.

Positive Economic Indicators

- Increased access to online markets has led to higher income opportunities for artisans and local producers in Bareilly and Rampur.
- Financial inclusion has improved, with more rural citizens opening bank accounts and using digital wallets for everyday transactions, reducing reliance on cash-based systems.

Analysis and Interpretation

- The integration of e-commerce and digital payment systems has begun to transform rural trade patterns in the Rohilkhand region. The analysis of secondary data reveals several key insights:

E-Commerce as a Market Expander

- E-commerce platforms are enabling rural traders to access markets beyond their local geographies. Sellers from Bareilly and Rampur are engaging in online sales of garments, agricultural tools, and local products through platforms like Meesho, Amazon, and Flipkart. This shift reflects a growing comfort with online selling and an increased desire to reach urban consumers.

Digital Payments Enhancing Transaction Efficiency

- The rise of digital payment options such as UPI, Paytm, and AEPS has facilitated faster and safer financial transactions. These systems are particularly beneficial for small shopkeepers and mobile vendors who previously relied on cash. The increased use of QR codes and mobile wallets has improved transaction transparency and recordkeeping.

Infrastructural and Social Constraints

- Despite growth, several challenges persist. Internet outages, irregular electricity supply, and limited smartphone access hinder consistent digital adoption, especially in Pilibhit and interior areas of Badaun. Furthermore, low levels of digital literacy and fear of cyber fraud discourage older and less-educated rural traders from fully transitioning to digital systems.

Government Initiatives Showing Mixed Results

- Government schemes like Digital India and PMGDISHA (Pradhan Mantri Gramin Digital Saksharta Abhiyan) have played a role in improving digital awareness. However, their effectiveness varies across districts. While Shahjahanpur has shown promising results due to active bank-led training sessions, Rampur lags behind due to weak implementation.

Economic Impact

- Digital commerce has started to uplift the income potential of rural sellers, particularly women entrepreneurs and home-based producers. It has reduced the dependence on middlemen and helped build direct customer connections. However, sustained growth requires better logistics, last-mile delivery systems, and continued financial support.

District	Common Digital Payment Modes	Level of Adoption (Est.)	Notable Observations
Bareilly	UPI, Mobile Wallets, Cards	High	Traders and small vendors show strong digital shift
Badaun	UPI, Paytm, AEPS	Moderate-High	Adoption growing in weekly markets and Kirana shops
Pilibhit	UPI, Cash Dominant	Moderate	Trust and connectivity issues slow digital growth
Shahjahanpur	UPI, Wallets, Card Machines	High	Digital payments accepted in rural haats
Rampur	UPI, AEPS	Low-Moderate	Limited awareness and fear of fraud persists

Findings

Based on the analysis of secondary data related to the Rohilkhand region of Uttar Pradesh, the following key findings have been identified:

1. **Rising Digital Adoption:** There is a noticeable increase in the adoption of e-commerce and digital payment platforms among rural traders and consumers, especially in semi-urban pockets of Bareilly and Shahjahanpur.
2. **Expansion of Market Access:** E-commerce has enabled rural entrepreneurs and small businesses to extend their market reach beyond traditional boundaries, creating new opportunities for income generation and product visibility.
3. **Improved Financial Inclusion:** The proliferation of digital payments—particularly UPI and mobile wallets—has contributed to easier, faster, and safer financial transactions, boosting transparency and banking engagement in rural trade.
4. **Barriers to Digital Integration:** Persistent issues such as poor internet connectivity, digital illiteracy, limited access to smartphones, and fear of cyber frauds continue to act as significant obstacles to widespread digital adoption in interior rural areas.
5. **Varying Impact Across Districts:** Digital transformation is uneven across the Rohilkhand region. While Bareilly and Shahjahanpur show promising progress in digital infrastructure and awareness, Rampur and Pilibhit still lag due to infrastructural and educational limitations.
6. **Government Efforts are Crucial but Inconsistent:** Initiatives like Digital India and PMGDISHA have contributed to rural digital awareness, but their implementation and outcomes vary significantly by district, depending on local administrative support and outreach.
7. **Potential for Empowerment:** Digital platforms have particularly empowered women, youth, and micro-entrepreneurs by providing low-cost business tools and reducing dependency on traditional market middlemen.

Suggestions and Recommendations

Based on the findings, several strategic recommendations can be made to enhance the role of e-commerce and digital payment systems in transforming rural trade in the Rohilkhand region of Uttar Pradesh:

1. **Strengthening Digital Infrastructure:** Improve internet connectivity and power supply in rural areas, especially in districts like Pilibhit and Rampur, through faster implementation of BharatNet and reliable last-mile connectivity solutions.
2. **Digital Literacy Campaigns:** Launch targeted training programs to improve digital skills among rural traders, artisans, and farmers. These should focus on using e-commerce platforms, online safety, and mobile banking tools.
3. **Localized Support Systems:** Establish district-level digital service centers to offer technical assistance, onboarding help for e-commerce platforms, and grievance redressal for issues related to digital payments and fraud.
4. **Encouraging Women Entrepreneurs:** Introduce tailored financial schemes and digital training for rural women entrepreneurs to help them leverage e-commerce for home-based businesses.
5. **Collaborations with E-Commerce Platforms:** Foster partnerships between local governments and major e-commerce companies to promote seller onboarding, streamline logistics, and improve delivery infrastructure in rural zones.

6. **Cybersecurity Awareness:** Conduct awareness drives to educate rural populations about online fraud prevention, safe payment practices, and secure usage of mobile apps.
7. **Monitoring and Evaluation:** Implement continuous monitoring mechanisms to evaluate the effectiveness of digital inclusion programs, allowing for data-driven improvements and resource allocation.
8. **Incentives for Small Traders:** Provide subsidies, discounts, or incentives for rural sellers adopting digital tools, including QR payment codes, mobile banking, or digital point-of-sale (POS) systems.

Conclusion

The integration of e-commerce and digital payment systems is steadily transforming the rural trade landscape in the Rohilkhand region of Uttar Pradesh. As evident from the study, these digital innovations have not only expanded market access and improved transaction efficiency but have also started to reshape traditional trade practices by empowering small-scale traders, artisans, and consumers.

However, the adoption of digital tools remains uneven across districts, largely due to infrastructural gaps, digital illiteracy, and socio-economic disparities. While districts like Bareilly and Shahjahanpur have made encouraging strides in digital transformation, others such as Pilibhit and Rampur continue to face challenges that hinder full-scale integration.

To unlock the full potential of digital commerce in rural areas, a holistic approach is needed—one that includes robust infrastructure development, grassroots-level training, policy support, and community engagement. By addressing these gaps, the Rohilkhand region can become a model for inclusive and sustainable digital trade in rural India.

This study contributes to the growing body of literature by providing region-specific insights into how digital tools are reshaping commerce in one of India's most economically and culturally rich rural belts. Future research may focus on primary data collection and comparative studies with other regions to deepen the understanding of digital commerce's role in rural economic development.

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A Comparative Study of Kautilya's Taxation Policy and the Modern Indian Tax System

Prof. Ritu Tiwari[1]

Introduction

"Governments should collect taxes like a honeybee, which sucks just the right amount of honey from the flower without causing any harm." ***—Kautilya***

Kautilya, also known as Chanakya, was a prominent philosopher, economist, and political advisor in ancient India. He is best known for his magnum opus, the Arthashastra, which is a comprehensive treatise on economics, politics, and governance. The Arthashastra is a rich source of insights into the economic and political systems of ancient India, including Kautilya's views on taxation.

Taxation was an important aspect of Kautilya's economic policy. In the Arthashastra, Kautilya describes the principles of taxation and outlines a framework for an efficient and fair taxation system. His ideas on taxation provide a window into the economic and political systems of ancient India and offer valuable insights into the challenges of designing and implementing effective tax policies.

Taxation, as an essential tool for governance, plays a pivotal role in shaping the economic structure and welfare of a state. In India, the history of taxation dates back to ancient times, where the state and economy were interwoven, and tax policies were integral to maintaining social and economic stability. According to Brahmanda Purana his regional period is 1534 B.C. to 1510 B.C. Kaliyug-raj-vrittanta-the dynastic information of the kings of the Kali-age-his regional period is shown as 1534B.C. to 1500B.C.

Kautilya's tax system was both pragmatic and sophisticated, considering the needs of state-building, resource distribution, and the balance between state revenue and citizens' burdens. His system of taxation focused on ensuring the welfare of the people while sustaining a powerful state, emphasizing efficiency, fairness, and the role of the state in providing public goods and services.

In contrast, India's modern tax system, while significantly more complex and diverse, shares some common principles with Kautilya's framework, such as the importance of progressive taxation and state welfare. The Indian tax system today encompasses various direct and indirect taxes, including income tax, goods and services tax (GST), and corporate tax, with a robust legal and administrative structure to manage these taxes.

1. Head, Department of Economics, Dayanand Arya Kanya Mahavidyalaya, Nagpur (MH) India.

This paper aims to examine the tax system described in the *Arthashastra* and compare it with the modern Indian tax system. By understanding the historical context and foundational principles laid out by Kautilya, we can draw valuable lessons that inform current tax policy and administration in India. This research will analyze the structure of taxation during Kautilya's time and explore the similarities and differences between his system and the contemporary tax framework of India.

Kautilya's Tax System

In the *Arthashastra*, Kautilya's approach to taxation was based on a strategic blend of economic efficiency and state authority. He believed that a well-structured taxation system was essential for the prosperity of the state, but it also had to be fair and reasonable to avoid social unrest. Kautilya's tax system was founded on several key principles:

Principles of Taxation in Kautilya's Time

Kautilya's tax philosophy was rooted in the belief that taxes should be designed to sustain the state while ensuring that they did not oppress the common people. He advocated for a balance between the state's needs and citizens' capacities to pay. The key principles of Kautilya's tax system included:

1. **Equity and Fairness**: Taxes were to be levied in a manner that was proportional to the wealth and income of individuals. This progressive approach meant that those who earned more would pay higher taxes.
2. **Efficiency**: Kautilya emphasized that taxes should be collected efficiently, with minimal leakage. He advocated for the use of skilled officials and mechanisms for timely and accurate tax collection.
3. **State Welfare**: Tax revenues were viewed as essential for the state's functioning, including defense, infrastructure, and welfare activities.

Types of Taxes in the Arthashastra

Kautilya identified several types of taxes, which were levied to support different sectors of the state:

1. **Land Tax (Bhaga)**: Land was the primary source of wealth and agricultural production in Kautilya's time. The land tax, also known as Bhaga, was one of the most significant forms of revenue. It was collected from farmers, typically around one-sixth of the crop yield. This tax was essential for maintaining the state and supporting the agrarian economy.
2. **Trade Tax (Vyapara)**: The economy during Kautilya's era was heavily dependent on trade, both local and international. The Vyapara tax was levied on commercial transactions and was a source of significant revenue. Kautilya's tax system prescribed detailed regulations for traders, ensuring that trade remained profitable while contributing to the state's coffers.
3. **Excise Duties and Tolls**: These were taxes imposed on goods like alcohol, salt, and other consumables. Tolls were also levied on travelers and merchants, especially those using the kingdom's roads and waterways. Kautilya's system ensured that excise duties were high on luxury items, thus increasing state revenue while encouraging frugality among citizens.

4. **Income Tax**: Kautilya's system included a form of progressive income taxation, where individuals with higher incomes paid a higher rate of tax. This progressive model, akin to modern taxation systems, ensured that those with greater wealth contributed more to the state.
5. **Additional Taxes**: Other taxes included animal taxes, cottage industry taxes, and even taxes on certain crafts and professions. Kautilya's system was comprehensive, covering almost every sector of the economy.

Tax Administration in Kautilya's Time

The efficiency of Kautilya's tax system rested on the competency and honesty of the administrators. Kautilya's *Arthashastra* laid out a detailed structure for tax collection, including the appointment of officers who were responsible for maintaining records, auditing, and ensuring the fairness of tax assessments. He emphasized the use of spies and intelligence networks to check tax evasion and corruption.

Kautilya also stressed the importance of a well-regulated system for public goods and services, where taxes would fund essential services like infrastructure, military defense, and public welfare. He believed that a state's ability to collect taxes efficiently and spend them judiciously was a hallmark of good governance.

Modern Tax System of India

India's modern tax system has evolved over centuries, adapting to changing political, social, and economic environments. The structure of India's current tax regime is governed by laws passed by Parliament, and it operates through two main categories: **Direct Taxes** and **Indirect Taxes**. The modern system, particularly post-independence, focuses on promoting equity, economic growth, and a sustainable welfare state. Key reforms, such as the introduction of the Goods and Services Tax (GST) and digitization of the tax filing process, have streamlined the system.

Direct Taxes

Direct taxes are levied directly on individuals, corporations, or entities, and include:

1. **Income Tax**: Income tax is the largest direct tax in India. Individuals, companies, and Hindu Undivided Families (HUFs) are subject to income tax based on their income. The system is progressive, meaning the tax rate increases with higher income levels. The government classifies income into various brackets, with higher rates applied to those earning more. For instance, in FY 2024-25, income up to ₹ 2.5 lakh is exempt, while income exceeding ₹ 5 lakh is taxed at rates ranging from 20% to 30%, depending on the amount.
2. **Corporate Tax**: Corporate tax is levied on the income or profits of companies and firms. The corporate tax rate in India varies depending on the type of company and its annual turnover. For domestic companies, the rate ranges from 25% to 30%. For foreign companies, the rate can be as high as 40%.
3. **Wealth Tax**: Although the wealth tax was abolished in 2015, India once imposed this tax on individuals owning assets such as property, jewelry, and other wealth exceeding a certain

threshold. However, with growing economic complexities, wealth tax was replaced by an increased focus on income tax and capital gains tax.

Indirect Taxes

Indirect taxes are levied on goods and services rather than individuals or corporations. These taxes are collected by intermediaries, such as businesses, and passed on to the government:

1. **Goods and Services Tax (GST)**: Introduced in 2017, the GST is a major reform in India's tax structure, replacing multiple taxes like VAT, service tax, and excise duties. It is a comprehensive, destination-based tax that is levied on the supply of goods and services. GST aims to create a single market in India by simplifying the tax structure, enhancing transparency, and reducing the cascading effect of taxes.
2. **Excise Duty**: Excise duties are levied on the production or manufacturing of goods within India. While excise duties were initially a significant part of the tax structure, they are now largely subsumed under GST.
3. **Customs Duty**: India also imposes customs duties on imports and exports, which are collected by the Customs Department. These duties vary depending on the nature of the goods and their origin.
4. **Other Indirect Taxes**: India also imposes taxes on services, such as the **Service Tax**, which has now been integrated into the GST system. Additionally, various states levy taxes like **Stamp Duty** on property transactions and **State Sales Tax** (replaced by GST in most cases).

Tax Reforms and Administration

The Indian tax system has undergone several reforms aimed at improving compliance, reducing evasion, and enhancing efficiency. Some of the significant reforms include:

1. **Introduction of the Goods and Services Tax (GST)**: The introduction of GST in 2017 was a game-changer. It unified the indirect tax system, reducing the multiplicity of taxes and fostering a more transparent tax regime. It also simplified the process of doing business in India, as businesses no longer have to deal with different state taxes.
2. **Income Tax Reforms**: The Income Tax Act, 1961, has been amended several times to keep up with changing economic realities. The government's initiatives, like the **Faceless Assessment Scheme** and **e-filing** of returns, have significantly reduced manual interventions and corruption in tax administration.
3. **Anti-Tax Evasion Measures**: India's tax administration has seen the strengthening of measures against tax evasion, such as the implementation of the **Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015**, which targets illicit wealth and offshore tax evasion.
4. **Taxpayer Charter**: The introduction of the **Taxpayer's Charter** aims to protect the rights of taxpayers, ensuring that the tax process is fair, transparent, and timely. The objective is to enhance trust between taxpayers and the government.

The overall tax administration in India today is managed by various bodies, such as the **Central Board of Direct Taxes (CBDT)** for direct taxes and the **Central Board of Indirect Taxes and Customs (CBIC)** for indirect taxes. Additionally, each state has its own tax authorities to handle taxes like VAT (now replaced by GST) and state-specific levies.

Comparison Between Kautilya's and Modern Tax Systems

While there is a significant historical gap between Kautilya's time and modern India, certain common principles underpin both the ancient and contemporary taxation systems. Below is a comparison between Kautilya's tax system described in the *Arthashastra* and the modern Indian tax structure.

Similarities

1. **Progressive Taxation**: Both Kautilya's and modern India's tax systems have adopted the principle of progressive taxation. Kautilya's system levied higher taxes on the rich, which is similar to how India's income tax system operates, where higher income earners pay a higher percentage in taxes. The idea is that individuals who have the ability to pay should contribute more to the state.
2. **State Welfare and Economic Growth**: Kautilya viewed taxation as a means to ensure the prosperity and security of the state. Similarly, India's modern tax system is designed to fund state functions, including welfare programs, public infrastructure, education, healthcare, and defence. Both systems view tax revenue as vital to state-building and the welfare of the people.
3. **Efficient Tax Collection**: Kautilya emphasized the importance of skilled and honest administrators to ensure tax collection was efficient. Modern India has continued this principle, with advanced systems for tax collection, audits, and enforcement through institutions like the Income Tax Department and the GST Council.
4. **Comprehensive Taxation**: Kautilya imposed taxes on various sectors, including agriculture, trade, and luxury items. India's modern tax system is similarly comprehensive, covering a wide range of goods and services, including agricultural products, manufactured goods, and services.

Differences

1. **Technological Advancements**: Kautilya's system was manual and depended on a network of officials to administer taxes. In contrast, modern India's tax system is highly digitized, with online tax filing, e-assessments, and data analytics for detecting tax evasion. The use of technology ensures efficiency and transparency, which was not possible in Kautilya's time.
2. **Complexity and Scope**: Modern India's tax system is much more complex than Kautilya's due to the increased diversity of economic activities, including corporate taxation, international trade, and digital transactions. Kautilya's system, on the other hand, was limited to the agrarian economy and basic trade. The modern system also has a broader legal framework, ensuring taxpayers' rights and protections under the Constitution.

3. **Legal Framework**: Kautilya's system was based on practical governance and did not have the same formal legal structure that modern India's tax system operates within. Today's tax system in India is underpinned by the **Income Tax Act of 1961**, the **Goods and Services Tax Act of 2017**, and the **Constitution of India**, offering legal guarantees and protections for taxpayers.

Philosophical and Structural Comparison

The tax systems of ancient and modern India, though vastly different in their institutional frameworks, share some core values. A comparative analysis reveals the continuity of principles such as fairness, administrative diligence, and adaptive policy mechanisms.

Feature	Kautilya's System	Modern Indian Tax System
Equity	Rich taxed more, poor given relief	Progressive income tax, GST exemptions for basic goods
Elasticity	Temporary increases for emergencies	Fiscal adjustments in budgets and emergency levies
Administration	Bureaucracy with local oversight	Centralized and digital with legal accountability
Revenue Sources	Agrarian economy, trade, licenses	Services, manufacturing, IT, global trade
Technology Use	Manual records and human surveillance	IT-based portals, data analytics, AI risk profiling
Transparency	Officials monitored through espionage	RTI, audits, and public reporting systems

The alignment in moral and operational philosophy highlights that taxation, when fair and efficiently administered, becomes a powerful instrument of public good.

Enduring Principles from Kautilya in Modern Context

Several of Kautilya's ideas find echoes in the present tax framework. His foresight in framing a dynamic, equitable, and humane taxation policy finds striking relevance in contemporary practices:

- **Fairness and Proportionality**: Both systems recognize that overburdening the taxpayer leads to discontent and inefficiency. Kautilya's emphasis on not taxing beyond one's capacity parallels the modern principle of progressive taxation.
- **Administrative Discipline**: Kautilya advocated for strict oversight of tax officials. Today, structured audit mechanisms, faceless assessments, and vigilance bodies carry forward this legacy.
- **Transparency and Communication**: Kautilya used public proclamations and documented rules to inform taxpayers. Similarly, today's use of tax portals, public notices, and awareness campaigns ensures informed compliance.
- **Crisis-Based Flexibility**: Just like Kautilya's emergency taxes, the Indian system adopts temporary surcharges or cesses during times of economic stress or disaster.
- **Welfare Orientation**: Kautilya emphasized that tax revenue must be used for the collective good. This resonates with contemporary goals like targeted subsidies, welfare programs, and infrastructure development.

Lessons for Contemporary Policymaking

Modern Indian tax policymakers can draw valuable lessons from Kautilya's nuanced approach:

- **Simplification of Tax Laws**: As Kautilya preferred clear and unambiguous tax norms, modern reforms must focus on making tax laws more understandable to the common citizen. This improves voluntary compliance.
- **Equitable Burden Sharing**: Kautilya's progressive approach to taxation underlines the need to ensure that wealthier individuals and corporations contribute a fair share to the public exchequer.
- **Corruption Control**: Like Kautilya's strict punishments for corrupt officials, present systems should continuously update surveillance and accountability mechanisms.
- **Decentralization**: Local tax collection and governance, as practiced in Kautilya's time, can enhance responsiveness and accountability in rural and urban local bodies.
- **Building Tax Morale**: Promoting tax as a civic duty rather than a burden can lead to higher compliance rates. Kautilya emphasized the state's role in welfare to legitimize taxation.
- **Outcome-Based Budgeting**: Inspired by Kautilya's result-oriented public spending, modern tax expenditure should be linked to performance metrics and social return on investment.

Challenges in Modern Tax System

Despite the advancements, the Indian tax system faces several issues that require urgent attention and innovation. These challenges threaten the efficiency, equity, and trust in the tax apparatus:

- **Tax Evasion and Black Money**: A persistent challenge, tax evasion undermines the revenue base and breeds inequality. The use of shell companies, underreporting income, and offshore accounts are common tactics. Strengthening the tax intelligence network, increasing international cooperation (e.g., automatic exchange of information), and leveraging data analytics are essential.
- **GST Implementation Bottlenecks**: While GST aims to unify the market and simplify indirect taxes, issues such as complex compliance procedures, classification ambiguities, and delays in input tax credit refunds hamper its efficiency. Frequent changes to GST rates and rules also cause confusion among businesses.
- **Low Tax Base and Informality**: A significant portion of India's workforce is employed in the informal sector, which contributes little to the tax kitty. Innovative measures like presumptive taxation schemes, improved access to banking, and digitization of transactions are necessary to broaden the tax base.
- **Litigation and Appeals Backlog**: Tax disputes take years to resolve, with crores of rupees locked in litigation. Streamlining dispute resolution mechanisms through alternate dispute resolution (ADR), advance rulings, and technology-driven case management can reduce delays.
- **High Compliance Costs**: Smaller businesses and individuals face high costs in navigating complex rules and documentation. Standardization of forms, multilingual support, and AI-based helpdesks can ease compliance.

- **Perceived Inequity**: There is a growing sentiment that the tax system disproportionately burdens salaried individuals while large corporations exploit loopholes. Greater transparency in tax exemptions, regular audits, and minimum alternate tax enforcement are vital to restore trust.

Potential Reforms Inspired by Kautilya

Kautilya's visionary insights continue to offer valuable guidance for reforming and strengthening the Indian tax system. Adopting some of his principles can lead to a more equitable, efficient, and transparent tax regime:

- **Result-Oriented Spending**: Kautilya emphasized accountability in the use of public funds. Modern tax policy should emphasize measurable outcomes in public service delivery. Performance-based budgeting and periodic impact assessments can align spending with developmental goals.
- **Enhanced Taxpayer Services**: Inspired by Kautilya's concern for fairness and clarity, tax departments should focus on building user-centric systems. Chatbots, real-time support, mobile-friendly platforms, and regional language options can enhance inclusivity and accessibility.
- **Decentralized Tax Administration**: The Mauryan system's local oversight ensured accountability. Empowering local governments with taxing authority and administrative autonomy can improve responsiveness, especially for property taxes, service fees, and environmental levies.
- **Transparency in Utilization**: Citizens should be aware of how their tax contributions are used. Annual tax utilization reports, public dashboards, and participatory budgeting exercises can improve fiscal transparency and civic engagement.
- **Behavioral Economics and Nudge Theory**: Like Kautilya's strategic messaging, modern tax policy can employ behavioral nudges—such as reminder messages, reward schemes, or social comparison—to encourage timely filing and honest disclosures.
- **Integrated Grievance Redressal System**: A single, tech-enabled portal for taxpayer grievances can ensure swift resolution and increase trust in the system. Feedback loops and accountability metrics should be integrated into service delivery.
- **Tax Culture and Civic Responsibility**: Beyond coercive enforcement, building a culture of tax compliance through education, outreach, and highlighting national progress funded by taxes can elevate voluntary compliance rates.

Conclusion

Kautilya's tax philosophy, crafted over two millennia ago, demonstrates a deep understanding of economics and human behavior. His approach emphasized a tax system that supports state functions without undermining public welfare. In modern India, while tools and institutions have changed, the guiding principles remain similar. A comparative study reveals that many of his ideas are not only relevant but also potentially transformative for contemporary fiscal policy. Integrating ancient wisdom with modern governance can help shape a fair, efficient, and transparent taxation system that meets the aspirations of a growing and diverse nation.

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Indian Knowledge System and Economy: Education and Skill Development through Experiential Learning

Rashmi[1] & Prof. Harishankar Singh[2]

Introduction

The Indian Knowledge System (IKS) refers to the collective body of traditional knowledge, philosophies, scientific practices, pedagogies, and cultural heritage that has been cultivated and passed down through generations in India. Rooted in diverse epistemologies, IKS spans across disciplines like mathematics, astronomy, medicine (Ayurveda), architecture (Vâstu), metallurgy, linguistics, agriculture, and philosophy. Unlike Western knowledge models, which often emphasize compartmentalization and standardization, IKS is holistic, integrative, and experiential—placing equal importance on intellectual, spiritual, and practical dimensions of learning.

At its core, IKS is not merely about content but about how knowledge is acquired, applied, and transmitted. It promotes learning through doing, fostering a gurukul-inspired culture of observation, immersion, and continuous reflection. The National Education Policy (NEP) 2020 has reintroduced IKS as a critical element of curriculum design, recognizing its potential to decolonize knowledge, bridge the skill gap, and revitalize India's educational philosophy.

Historical Perspectives: Gurukul System, Nalanda, and Takshashila

Gurukul System: Learning by Living

The Gurukul system was the foundational educational model of ancient India, predating modern institutions by centuries. Under this system, students (œicyas) lived with their teachers (gurus), engaging in direct, experiential learning that integrated intellectual growth with moral and spiritual development. Education was personalized, dialogical, and centered on practical skills such as farming, archery, carpentry, medicine, and scriptures, depending on the aptitude and social role of the learner. Importantly, the Gurukul emphasized value-based education—students were taught not only 'what to learn' but also 'how to live'. This system cultivated a generation of learners who were not just literate, but wise, ethical, and capable of contributing meaningfully to society.

1. Research Scholar (JRF), Department of Education, Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow, Uttar Pradesh. E-mail: rashmikatyayn@gmail.com
2. Professor, Department of Education, Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow, Uttar Pradesh. E-mail: hssingh214@gmail.com

Nalanda and Takshashila: Ancient Centers of Global Learning

India was also home to some of the world's earliest and most respected universities. Nalanda University (established in the 5th century CE) and Takshashila University (circa 6th century BCE) were internationally acclaimed centers of learning that attracted scholars from China, Korea, Tibet, and Central Asia.

- **Takshashila**, regarded by many as the world's first residential university, offered over 60 subjects including medicine, law, political science, military science, and the Vedas.
- **Nalanda**, on the other hand, boasted a vast library (Dharmaganja), and had a robust curriculum in Buddhist philosophy, logic, mathematics, grammar, and astronomy.

Both institutions were **multidisciplinary and research-oriented**, following **Socratic-style debate** and **project-based pedagogy**—which closely resembles what we today call *experiential learning*. Teachers at these institutions were revered not only for their knowledge but also for their ability to inspire and mentor students in real-world application of skills. Together, these ancient models underscore how India's traditional educational systems were far ahead of their time, blending theory with practical training in a way that is being rediscovered and advocated again in the 21st century.

Modern Educational Challenges

Despite its rich legacy, modern Indian education has, in many ways, drifted away from its roots. Following colonial influence and post-independence development patterns, education in India became centralized, examination-driven, and heavily theory-oriented. This has created several enduring challenges:

1. **Skill Gap:** One of the most pressing concerns is the gap between formal education and employable skills. According to reports by the India Skills Report and NASSCOM, a large percentage of Indian graduates are not job-ready, lacking key skills such as communication, critical thinking, problem-solving, and domain-specific expertise. The disconnection between academia and industry continues to limit productivity and innovation.
2. **Rote Learning Culture:** Modern schooling systems place a disproportionate emphasis on memorization over understanding. Students are trained to reproduce textbook content in exams rather than apply concepts to real-world problems. This not only stifles creativity but also fails to nurture independent thinking, curiosity, and innovation. Such a culture is in direct contrast to the experiential models that characterized traditional Indian education.
3. **Rising Unemployment and Underemployment:** India is experiencing a youth bulge—with nearly 65% of its population under 35—yet paradoxically faces high youth unemployment and underemployment rates. Many students graduate with degrees that are theoretically rich but practically hollow, making them ill-equipped for the dynamic demands of the labor market. The service sector saturation, the neglect of vocational education, and the lack of entrepreneurial support only worsen the situation.

Bridging the Gap through Experiential Learning & IKS

In response to these systemic issues, policymakers and educators are increasingly turning toward experiential learning and IKS-inspired models to revitalize the education system. Experiential learning—through apprenticeships, internships, project-based learning, community immersion, and lab work—has the potential to:

- Bridge the gap between classroom knowledge and practical application
- Foster multi-skill training adaptable to modern job markets
- Enhance self-employment, entrepreneurship, and innovation

Simultaneously, integrating IKS into mainstream curricula offers a culturally relevant, sustainable, and context-specific way to impart skills. Whether it's through teaching sustainable agriculture using traditional knowledge, or reviving ancient metallurgical techniques, the IKS framework provides a rich and untapped reservoir of applied wisdom.

Research Question

- How effectively can experiential learning approaches bridge the skill gap in contemporary India?
- Can integrating IKS into modern education enhance practical skill development and entrepreneurial capabilities among students?
- What is the economic impact of transitioning toward an experiential, IKS-inspired learning model?

Objectives of the Study

1. To define and contextualize the Indian Knowledge System within both historical and contemporary education models.
2. To examine the principles and practices of experiential learning, including its theoretical foundations and practical applications.
3. To explore how experiential learning strategies can address the current skill gap and reduce youth unemployment in India.
4. To assess the economic impact of experiential and skill-based education on India's labor force productivity and innovation capacity.
5. To investigate the potential for mainstreaming IKS into education policy and institutional frameworks.
6. To provide policy recommendations to support experiential learning, industry-academia collaboration, and integration of IKS into curricula.

Methodology

The methodology includes qualitative and case-based research of experiential learning initiatives and IKS-integrated programs.

Theoretical Framework: Indian Knowledge System & Experiential Learning

Concept of Indian Knowledge System (IKS)

The Indian Knowledge System (IKS) represents a diverse and ancient continuum of intellectual traditions developed in the Indian subcontinent. It spans subjects such as mathematics (e.g., Sulbasutras), medicine (Ayurveda), architecture (Vâstu Shastra), agriculture, astronomy, and ethics, woven together by holistic principles of learning and living. According to Khan & Sharma (2024), IKS is not merely a content repository but a living system that promotes sustainability, spirituality, interdisciplinary integration, and ethical consciousness in the pursuit of knowledge.

Key principles of IKS include:

- Holistic learning that balances physical, emotional, intellectual, and spiritual domains.
- Contextual knowledge rooted in ecology, community, and observation.
- Oral and practical pedagogy, emphasizing transmission through immersion and experience.
- Integration of science, art, and values, rather than siloed subject categories.

The NEP 2020 explicitly encourages the integration of IKS into mainstream education to decolonize pedagogy and revive India's own intellectual legacies (Sachdeva & Latesh, 2023).

Experiential Learning: A Modern Approach

Experiential learning, as defined by **David A. Kolb**, is "the process whereby knowledge is created through the transformation of experience." It involves a cyclical model:

1. Concrete Experience
2. Reflective Observation
3. Abstract Conceptualization
4. Active Experimentation

In the Indian context, this methodology aligns closely with traditional learning-by-doing methods. Studies show that hands-on activities, project-based modules, rural internships, and field immersion significantly improve students' critical thinking and employability (Rao et al., 2024; Moitra & Madan, 2025).

Applications of experiential learning in India include:

- Rural Agricultural Work Experience (RAWE) programs for agricultural students (Sajeev & Gowda, 2013)
- Work-integrated training in Ayurveda and crafts using traditional methods (Mishra & Aithal, 2023)
- Creative movement and arts for cognitive development in primary schools (Swetha & Kalebar, 2024)

These models allow learners to engage with real-world problems, reflect, adapt, and evolve with practical wisdom—core to both IKS and Kolb's theory.

Comparative Analysis: IKS vs. Western Educational Models

Dimension	Indian Knowledge System (IKS)	Western Model (Modern)
Epistemology	Holistic, cyclical, values-based	Linear, rational, empirical
Learning Method	Experiential, oral, immersive	Textbook-based, abstract, lecture-oriented
Purpose of Education	Inner transformation, social responsibility	Career advancement, knowledge acquisition
Assessment Approach	Observation, demonstration, practical engagement	Exams, grades, standardization
Curriculum	Interdisciplinary and contextual	Segmented by disciplines and modules
Integration with Society	Strong (e.g., Gurukuls within community)	Weak (institution-centered)

IKS-based learning integrates moral development and practical wisdom. In contrast, many modern systems struggle with fostering deep understanding, emotional intelligence, and social connectedness (Gayathri, 2024). The experiential roots of IKS can therefore complement Western techniques by instilling context, sustainability, and ethics in modern education.

Education & Skill Development: Bridging the Gap

Current Educational Landscape in India

India boasts one of the largest education systems in the world, with over 1.5 million schools and 40,000+ higher education institutions. However, its performance on skill development, employability, and innovation metrics continues to underwhelm. A major cause of this mismatch is the misalignment between formal education and practical skills required by the evolving economy.

Major Challenges:

- **Employability Crisis**: As per the *India Skills Report 2024*, only about **49% of graduates are job-ready**, reflecting a stark gap between academic learning and industrial needs.
- **Low Integration of Vocational Training**: Only **5% of the workforce** in India has formal vocational training, compared to 52% in the US and 75% in Germany.
- **Outdated Pedagogy**: Heavy reliance on **rote learning**, over-emphasis on exams, and negligible exposure to real-world tasks has resulted in poor critical thinking and problem-solving abilities among students.
- **Dropout Rates & Equity Gaps**: Higher dropout rates in rural and marginalized communities reflect the **lack of engagement, contextual content, and practical value** in education.

The *National Education Policy (NEP) 2020* acknowledges these flaws and emphasizes the need to transition toward a more **competency-based, experiential, and multidisciplinary education system**.

Role of Experiential Learning in Skill Development

Experiential learning transforms the learner from a passive recipient to an active participant, cultivating industry-relevant skills such as decision-making, communication, and creativity. This pedagogy aligns with IKS, where the apprentice (œicya) learned directly through observation, action, and correction.

Benefits of Experiential Learning:

- Bridges the academia-industry gap
- Improves cognitive retention
- Fosters entrepreneurship and innovation
- Promotes lifelong learning

Notable Indian Implementations:

1. **Work-Integrated Learning Programs (WILPs):** Institutions like BITS Pilani and IGNOU have developed WILPs that combine classroom theory with on-site industrial experience. According to *Sharma & Sharma (2021)*, these programs boost both employability and confidence in students.
2. **Rural Agricultural Work Experience (RAWE):** Agricultural universities implement this 6-month field immersion, allowing students to engage directly with farming communities. It bridges the rural-urban divide in knowledge application. (Sajeev & Gowda, 2013)
3. **Business Simulation & Management Labs:** Modern B-Schools like IIMs and SP Jain use role-plays, simulations, and real-time project incubation for MBA students. These practices are linked to higher innovation indexes and startup success rates (Rao et al., 2024).
4. **Skill Universities:** States like Gujarat and Haryana have launched skill universities focusing on hands-on education, apprenticeships, and entrepreneurship. Their curriculum is rooted in experiential methods and regional needs.

Integration of IKS into Skill Development Programs

The Indian Knowledge System contains millennia-old vocational knowledge across domains like Ayurveda, architecture, metallurgy, agriculture, textiles, and astronomy. Integrating this into modern skill-building programs allows learners to access contextual, sustainable, and indigenous solutions.

Areas Where IKS Is Impacting Skill Development:

1. **Ayurveda and Traditional Medicine**: IKS-based training in Ayurveda emphasizes clinical observation, herbal processing, diagnosis through touch and pulse, and understanding of body energies (Doshas). Initiatives like AYUSH and IKS Centers under AICTE aim to train thousands in these systems.
2. **Architecture & Civil Engineering (Vâstu Shastra)**: Students in architecture are now exposed to ancient Indian techniques that optimize building designs for climate, energy flow, and sustainability. Institutes like CEPT and IIT Roorkee have started integrating Vâstu principles into coursework.
3. **Agricultural Practices**: Reviving indigenous farming systems, including permaculture, crop rotation, and water harvesting (e.g., *Zabo system in Nagaland*), empowers rural youth and fosters climate-resilient agriculture.

4. **Artisanal & Craft Skills (Shilpa Shastra)**: Government initiatives like **"Skill India"** and **"One District One Product (ODOP)"** are creating pathways for youth to master crafts passed through generations—such as Banarasi weaving, brass work, and handloom traditions—ensuring skill transfer with economic empowerment.
5. **Language & Logic**: The study of Sanskrit grammar (e.g., Panini's *Ashtadhyayi*) develops high-order computational and logical reasoning skills, essential for students in AI and linguistics.

Policy Highlights & NEP 2020 Reforms

The NEP 2020 explicitly promotes:

- Vocational training from Grade 6 onward
- Experiential, inquiry-driven, discussion-based teaching
- Introduction of Indian Knowledge Systems and local knowledge into curriculum
- Establishment of National Skills Qualifications Framework (NSQF)
- Emphasis on internships, community participation, and crafts training

These changes aim to transform education from being **degree-centric to skill-centric**.

Theme	Insights
Current Scenario	Skill mismatch, rote learning, low employability
Experiential Learning Role	Improves job readiness, retention, critical skills
IKS in Skill Training	Revives traditional knowledge with modern applications
Successful Models	RAWE, WILPs, AYUSH training, ODOP, arts & crafts education
Policy Support (NEP 2020)	Pushes for integration of IKS, vocationalism, and experiential pedagogy

Economic Impact of Experiential Learning & IKS-Based Education

Skill Development & Workforce Productivity

India's aspiration to become a **$5 trillion economy** relies heavily on transforming its **demographic dividend into a productive workforce**. However, this remains a challenge due to the **skills-employability mismatch** in mainstream education. **Experiential learning and IKS-based education models** have shown substantial promise in addressing this issue by producing **skilled, adaptive, and entrepreneurial individuals**.

Evidence of Impact:

- According to *Singh et al. (2022)*, graduates from programs involving full-term experiential learning projects show a 30–50% increase in job readiness and industry placement rates compared to conventional streams.
- *Rao et al. (2024)* found that experiential learning programs embedded in business education enhanced problem-solving, communication, and startup incubation success by 40–60%.

- Skill-based learning models adopted by institutions like IITs and NSDC (National Skill Development Corporation) have reduced dropout rates and improved **youth** income potential, especially in rural and semi-urban clusters.

Contribution to the Indian Economy

The economic benefits of integrating experiential and IKS-based education extend far beyond employment. They foster a sustainable innovation ecosystem, stimulate MSME growth, and reduce dependence on imported skills and technologies.

Key Economic Contributions:

1. Boost to MSMEs and Rural Enterprises

- India's handloom, handicraft, and agro-based MSMEs—often rooted in IKS—employ over 100 million people.
- Experiential learning modules tailored to local industries, such as craft-based apprenticeships and farm-to-market supply chains, help revitalize traditional economies.
- Programs under PM Vishwakarma Yojana focus on skill training for traditional artisans, directly linking education to economic empowerment.

2. Agriculture and Environmental Sustainability

- Traditional organic farming, water harvesting, and climate-resilient techniques taught through experiential methods increase farm yield, reduce input costs, and promote environmental stewardship.
- In *Sajeev & Gowda (2013)*'s study, students trained in RAWE experiential modules showed increased entrepreneurial interest in agribusiness and local food processing units.

3. Entrepreneurship and Startups

- NEP 2020 encourages incubation hubs in higher education institutions.
- IKS-based innovation (e.g., Ayurvedic formulations, herbal products, eco-friendly construction) is emerging as a major startup vertical, supported by Start-Up India and Atal Innovation Mission.
- *Nair (2020)* showed that engineering students involved in competitive experiential programs were 2.5x more likely to launch startups.

4. Reduction in Migration and Urban Pressure

- By anchoring education in local livelihoods and knowledge systems, experiential learning creates sustainable employment opportunities within rural and tribal regions.
- This reduces distress migration and eases pressure on urban infrastructure and job markets.

Policy Recommendations:

Focus Area	Recommendation
Curriculum	Embed hands-on modules and IKS content in all disciplines
Teacher Training	Establish Faculty Development Programs in experiential methods & local skills
Industry-Academia Linkages	Encourage joint certification programs, internships, and live projects
Entrepreneurship Support	Provide microfinance, mentorship, and incubation for IKS-based startups
Rural Empowerment	Integrate local crafts and farming knowledge in education
Infrastructure	Fund skill labs, simulation zones, and regional resource centers

Future Scope:

- IKS-driven EdTech platforms can make experiential learning scalable via virtual reality, simulation, and gamification.
- IKS content can enrich environmental studies, AI ethics, sustainable development, and interdisciplinary programs.
- Partnerships with UNESCO, WIPO, and AYUSH ministries can globalize India's indigenous knowledge as exportable educational IP.

Key Findings

1. **Indian Knowledge Systems (IKS)** provide a robust, time-tested educational framework that is holistic, ethical, and inherently experiential. From Ayurveda and Vâstu to agriculture and crafts, IKS reflects a deep understanding of applied knowledge rooted in observation, immersion, and community engagement.
2. **Experiential learning**, as defined by Kolb's learning theory, aligns seamlessly with India's traditional modes of knowledge transfer—whether through the **Gurukul system**, apprenticeships, or field-based inquiry. When applied in modern institutions, it significantly improves **skill acquisition, critical thinking, and employability**.
3. **Skill development** is a major bottleneck in India's current educational framework. With nearly half the graduates deemed unemployable, the adoption of **hands-on, contextual learning methods** is not just desirable but imperative.
4. Integrating **IKS into contemporary curriculum** has already begun through initiatives like the NEP 2020, the National Skills Development Mission, and various sectoral pilot programs. However, challenges remain in terms of **faculty readiness, policy enforcement, funding, and systemic reform**.
5. **The economic benefits of this educational transformation are tangible and multifold:**

- Enhanced workforce productivity
- Boost to MSMEs and rural industries
- Entrepreneurial growth in indigenous sectors
- Reduction in urban migration
- More sustainable and inclusive economic models

Limitations & Challenges

- Lack of trained educators familiar with both IKS content and experiential pedagogies.
- Resistance from traditional academia to shift away from exam-centric systems.
- Insufficient infrastructure in rural and government institutions for labs, field immersion, and apprenticeships.
- Need for evaluation reforms to assess applied knowledge rather than rote memorization.

Future Directions

- **Curricular Integration**
  - Include IKS modules across disciplines like medicine, engineering, humanities, and environment.
  - Encourage bilingual education (regional + English) for wider accessibility to IKS texts and practices.
- **Public-Private Partnerships (PPPs)**
  - Involve industry in co-designing skill programs with real-world application.
  - Promote apprenticeships, live labs, and incubation centers within academic campuses.
- **Technology & EdTech**
  - Use AI, AR/VR, and digital storytelling to recreate traditional IKS practices (e.g., simulated Ayurvedic diagnosis).
  - Develop localized e-learning modules in traditional farming, craft, and wellness systems.
- **Globalization of Indigenous Knowledge**
  - Position India as a global hub for indigenous education by standardizing and exporting IKS pedagogy (e.g., Yoga, Ayurveda, Sanskrit logic).
  - Collaborate with UNESCO and WIPO to safeguard and share traditional knowledge as global intellectual property.

Conclusion

India's pursuit of becoming a global knowledge powerhouse must be rooted not only in technological advancement and innovation, but also in its rich civilization heritage of learning. India stands at a rare historical moment where its traditional wisdom and modern aspirations can converge meaningfully. By embracing experiential learning and Indian Knowledge Systems, the country can not only educate better, but also build a society that is productive, ethical, self-reliant, and future-ready. Education reform is not merely about updating syllabi; it is about reclaiming the soul of learning—to think, to do, and to be. If this holistic, practice-led, and culturally rooted vision of education is nurtured and scaled, India can confidently lead the world into a new era of sustainable knowledge economies.

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Indigenous Knowledge and Sustainable Development

Subah Singh Yadav[1], Dr. Dinesh Kumar[2] & Prof. (Dr) U.R. Yadav[3]

Introduction

Humans essentially acquire information for two reasons: to survive and to advance in their level of livelihood. They also attempt to comprehend and grasp the environment in order to survive, which extends beyond their natural response to dangers. To put it briefly, the foundation of all actions is to strengthen the knowledge systems that existed long before contemporary science, which is relatively new, whereas indigenous knowledge, together with its meanings, goals, and values, evolved long ago. For many years, humans have maintained all of the natural topography with the help of local knowledge. We also lose the land if we lose their wisdom. Caricatures will continue to be shown to non-native audiences if the native peoples are not given a voice. This type of heritage is commonly referred to as "Indigenous knowledge," "Traditional Knowledge," "Local Knowledge," "Traditional ecological knowledge," or "Ethno-ecology," among many other terms. It is frequently viewed as being in contrast to, or at least very different from, Western methods of creating, documenting, and disseminating knowledge. By learning from indigenous knowledge, we can comprehend issues related to agriculture, healthcare, food security, education, and natural resource management. It promotes resilience and adaptation. Indigenous communities have evolved complex coping mechanisms that enable them to survive in harsh environments for centuries.

With the adoption of the 2030 Agenda for Sustainable Development, the international community committed to address a great number of challenges. Among those emphasized by the SDGs, some are highly relevant for indigenous groups. Education, poverty, access to justice, and climate change are only a few of the issues affecting indigenous people's lives. Yet, indigenous groups are not passive actors. Despite being at the mercy of climate hazards and misleading political decisions, the knowledge system they have developed throughout the centuries has helped them to successfully respond to ecological and development challenges. By exploring indigenous cultures and their knowledge systems in greater depth, this article aims to understand how the sustainable development agenda can benefit from these different forms of traditional knowledge. More particularly, it will attempt to explain the main notions in which traditional knowledge is rooted and analyze means of knowledge maintenance and transmission. It will then explore the relationship between indigenous

1. Former Learning Head, Baroda Academy, Bank of Baroda, Jaipur.
2. Dupty General Manager (HRM) Head Office, Bank of Baroda, Baroda.
3. Professor & Head, Department of Economics, Bundelkhand College, Jhansi (U.P.).

knowledge, sustainable practices, and land and resource management, as well as climate change adaptation and disaster risk reduction strategies. These ideas will be supported by a discussion on the need to guarantee Indigenous people full access to land and justice for them to fully realize their rights. The conclusion reflects on the importance of fostering an integrated system of knowledge in which Indigenous groups are involved in knowledge-sharing practices and decision-making processes.

Indigenous Knowledge's Dimensions

The new sustainable development agenda covers a wide range of issues that have a direct impact on the lives of Indigenous peoples, including poverty, education, access to justice, and climate change. While their knowledge and expertise, which are firmly anchored in their relationship with nature and community, have proven effective in addressing some of these issues, it is insufficient because they are caught between environmental hazards on the one hand and development on the other. Initiatives on the other, if some solutions are not taken rapidly there will be negative consequences for the survival of these populations as well as for their knowledge systems. knowledge loss has been already responsible for increasing the vulnerability and risk for indigenous populations. It is, therefore, important that the national and international community starts recognizing Indigenous peoples and their knowledge as valuable allies in the fight against climate change and sustainable development challenges and in maintaining global biodiversity. In light of the new post - 2015 sustainability agenda, joint efforts are urgently required to develop and implement suitable initiatives to empower indigenous peoples to uphold and realize their rights and be involved in the decision-making process, becoming in this way active agents of change. From the case studies, it is clear that IK plays an important role in the development of several sectors, including forestry, agriculture, and medicine. IK is environmentally sustainable in many cases. Also, it is an important source of local subsistence and food security. It has been produced based on local resources, technologies, and local culture.

The Sustainable Development Agenda and Indigenous Knowledge

The new sustainable development agenda encompasses many issues that are directly affecting Indigenous peoples' lives. Education, poverty, access to justice, and climate change are only a few of the challenges that Indigenous people have been and are currently facing. Their knowledge and know-how, deeply rooted in the relationship of Indigenous peoples with nature and community, have proven to be efficient in responding to some of these challenges; however, it is not enough. Caught between environmental hazards on one side and development initiatives on the other, if some solutions are not taken rapidly there will be negative consequences for the survival of these populations as well as for their systemsknowledge .Knowledge loss has been already responsible for increasing the risk and vulnerability faced by indigenous groups. As a result, it's critical that the national and international community begins to acknowledge Indigenous peoples and their knowledge as important allies in the battle against climate change.

The four pillars of sustainability are human, social, economic, and environmental. The concept of sustainable development refers to the idea that people should meet their basic needs while also ensuring that future generations can meet theirs. To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations. Dr. Gro Harlem Brundtland, who is regarded as the "mother" of sustainable

development, credits her father, a doctor and cabinet minister, for her passion for public health, the environment, and political activism. The Sustainable Development Goals were first proposed in 1972 by the "Club of Rome," a global think tank.In order to achieve a more satisfactory relationship between society and its environment, timely provisions should be made for the changes that human activities and competition overuse of resources may bring about in order to minimise potential conflicts. The Sustainable Development Goals (SDGs), also known as the Global Goals, build on the success of the Millennium Development Goals (MDGs) and aim to go further to end all forms of poverty. The new Goals are unique in that they call for action by all countries, poor, rich, and middle-income, to promote prosperity while protecting the planet.

Indigenous Customs are Equally Essential to the Destiny of the World

"We must preserve and strengthen Indigenous practices, which contribute to sustainable environmental management and provide leadership in combating climate change, nature and biodiversity loss, pollution and waste," says Siham Drissi, a Programme Management Officer at the United Nations Environment Programme (UNEP). Environmental advocates are realising that the spread of indigenous practices is also essential to the future of the planet. According to a growing body of research, traditional methods that have been used for millennia to grow food, control wildfires, and conserve endangered species may help halt the sharp decline of the natural world.

Knowledge Transfer Systems

The value that indigenous communities place on women and elders does neither lessen the difficulties or enhance the circumstances of these particular groups. Indigenous women are frequently undervalued and in a precarious situation, while elders frequently experience opposition to adopting traditional traditions as a result of the widening generational divide. Indigenous communities' capacity to preserve their knowledge is being impacted by women's invisibility and the generational divide. Younger generations suffer greatly from this since it erodes their social capital, which may make it harder for them to adapt to socioeconomic and ecological issues. To stop this knowledge loss, national and international initiatives that support gender equality and work to bridge the generational divide are essential.

The Benefits of Indigenous Knowledge

The main findings of the studes showed the framework was useful and efficacious in addressing teachers philosophical concerns about the inclusion of IK in the science curriculum, moreover, the framework was useful in developing effective teaching approaches for integrating indigenous knowledge into science education for improved learner performance. IK-science curriculum integration, it is argued, provides contexts that are familiar and relatable to learners, thus those features are likely to enhance interest and improve performance and in turn increase the socio-cultural relevance of science and science education.

Land Rights, Mitigation Tactics, and Access to Justice

The significance of Indigenous knowledge for environmental sustainability is becoming more widely acknowledged by the international community. For example, Indigenous and traditional

knowledge are identified as "major resource[s] for adapting to climate change" in the Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), which also emphasises the necessity of "integrating such forms of knowledge with existing practices [to] increase the effectiveness of adaptation." However, indigenous communities' involvement in decision-making has not expanded as a result of international recognition. As a result, their activities are mostly disregarded, and when they attempt to defend their rights, they are frequently violently put down (UN, 2010). Furthermore, the Kyoto Protocol and other local, national, and international agreements to lessen the adverse consequences of climate change have seriously harmed indigenous areas, resulting in a rise in poverty and marginalisation. For example, millions of hectares of forests that indigenous tribes rely on for their livelihoods have been destroyed as a result of the introduction of oil palm plantations for the production of biofuel in many parts of the world. Additionally, it has led to a rise in social conflicts between indigenous communities, governments, and private enterprises, as well as an increase in pollution levels and the decline of indigenous economies (UNPFII,2007).

The Agenda 2030 and Knowledge Systems

The mounting loss of the traditional knowledge of indigenous peoples presents environmental as well as ethical issues. Fundamental among these is the sustainability of indigenous societies and their ecosystems. Although the commercial expropriation of traditional knowledge grows, rooted in a global, corporate application of intellectual property rights (IPRs), the survival of indigenous societies becomes more problematic. One reason for this is an unresolved conflict between two perspectives. In the modernist view, traditional knowledge is a tool to use (or discard) for the development of indigenous society, and therefore it must be subordinated to Western science. Alternatively, in the postmodernist view, it is harmonious with nature, providing a new paradigm for human ecology, and must be preserved intact. We argue that this encumbering polarization can be allayed by shifting from a dualism of traditional and scientific knowledge to an assemblage of local knowledge, which is constituted by the interaction of both in a third space. We argue that IPR can be reconfigured to become the framework for creating such a third space.

Conclusion

The international community is dedicated to tackling numerous challenges with the adoption of the 2030 Agenda for Sustainable Development. Some of the SDGspriorities are extremely pertinent to indigenous communities. Issues impacting the lives of indigenous people include poverty, education, access to justice, and climate change. Indigenous communities, however, are active participants. Their centuries-old knowledge system has enabled them to effectively address ecological and development difficulties, even though they are vulnerable to climate dangers and deceptive political decisions. This paper attempted to comprehend how the sustainable development agenda might benefit from these various forms of traditional knowledge by delving further into indigenous cultures and their knowledge systems.

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Indian Knowledge System as a Tool of Economic Development of Rural India

Dr. Seema[1]

ABSTRACT

This research paper explores traditional Indian knowledge systems and their role as catalysts for economic development in rural India. By focusing on indigenous practices that have been passed down through generations, the study investigates how these systems boost rural incomes and foster sustainable growth. Through case studies and statistical data from four Indian states-Madhya Pradesh, Odisha, Jharkhand, and Chhattisgarh-home to prominent tribal communities, the research demonstrates that integrating local knowledge with modern economic practices can lead to improved livelihoods, diversified income sources, and enhanced social well-being.

The paper begins by outlining the core aspects of traditional Indian knowledge systems, including agricultural practices, herbal medicine, artisanal craftsmanship, water resource management, and community-based governance. It discusses the inherent linkages between these practices and the rural economy, arguing that such indigenous resources have often been undervalued in formal economic policies. The literature review synthesizes existing research on indigenous knowledge and rural development while highlighting the gaps that this study aims to fill.

The methodology adopted in this study combines quantitative analysis-using statistical datasets and income indicators-with qualitative approaches that include in-depth interviews with community leaders and field observations of implemented traditional practices. The results indicate that areas where traditional knowledge is actively maintained and enhanced have experienced, on average, a 15-20% increase in household incomes over the past decade. This paper also documents several successful case studies: a village in Odisha that leveraged traditional water harvesting for agricultural intensification, a tribal community in Jharkhand that revitalized older artisanal techniques to access niche markets, and projects in Chhattisgarh and Madhya Pradesh that emphasized sustainable organic farming.

The discussion articulates the potential for scaling these practices as part of strategic rural development policies. It stresses the need for institutional support, policy reforms, and technical upgradation to harness the full potential of Indian knowledge systems. The paper concludes with a series of recommendations for policymakers focused on integrating traditional knowledge into the development paradigm. The conclusion offers policy prescriptions that include creating knowledge hubs, providing microfinance support for indigenous enterprises, embedding traditional practices in educational curricula, and fostering public-private partnerships.

1. Assistant Professor, Department of Economics, Dhanauri PG College Dhanauri, Haridwar, (U.K).

Overall, the study contributes to a growing body of literature that positions traditional knowledge not as a relic of the past, but as a forward-looking strategy for sustainable development. The research underscores that resilience in rural economies is best achieved by combining the wisdom of the past with the innovations of the present.

Introduction

India is a land of diverse cultures and traditions, where indigenous knowledge systems have evolved over millennia. These systems encompass a wide variety of practices, ranging from traditional agricultural techniques and local health care remedies to artisanal crafts and community-led resource management. Despite the rapid modernization and globalization of the economy, these age-old practices continue to hold significant relevance due to their adaptability, sustainability, and contextual appropriateness. In rural regions where formal economic structures often fall short, traditional Indian knowledge systems can serve as a potent tool for fostering economic resilience and inclusive development.

The development trajectory of rural India has long been shaped by the interplay of modern economic policies and traditional practices. With more than 70% of the Indian population residing in rural areas, the economic and social well-being of these communities remains central to the nation's overall growth. However, the modernization drive frequently marginalizes tribal and rural populations, particularly in states rich in indigenous traditions. The selective emphasis on industrialization and urban-centric policies has obscured the potential benefits of integrating traditional knowledge with contemporary economic strategies.

In this context, the present research paper investigates the role of traditional Indian knowledge systems as a vital mechanism for rural economic development. The study is anchored on the hypothesis that these systems, when synergized with modern technologies and market mechanisms, can unlock untapped economic potentials, create job opportunities, and improve sustainability. The decision to focus on four Indian states—Madhya Pradesh, Odisha, Jharkhand, and Chhattisgarh—is motivated by the unique socio-cultural and economic characteristics of their tribal communities. These states, marked by their rich mosaic of indigenous practices, offer empirical insights into how localized knowledge can be harnessed to drive rural development.

This investigation is particularly timely given the dual challenges of economic inequality and environmental degradation that are impacting rural areas across India. The adverse effects of climate change, unpredictable weather patterns, and the depletion of natural resources are exacerbating rural poverty. At the same time, the disintegration of traditional knowledge systems due to modernization has led to the underutilization of valuable local resources. Consequently, policymakers face a pressing challenge: how to revitalize the indigenous knowledge that has for so long underpinned rural livelihoods, and how to align it with modern development goals.

The objectives of this research are threefold: first, to document and analyze traditional Indian knowledge practices that have a direct economic impact on rural communities; second, to assess the economic benefits derived from these practices through quantitative and qualitative analysis; and third, to propose practical implementation methods and policy recommendations that further integrate these systems into the rural development framework. The study builds on interdisciplinary

perspectives, incorporating insights from anthropology, economics, development studies, and environmental science.

The structure of this paper is organized into several sections. After the introduction, a comprehensive literature review examines the theoretical and empirical foundations of indigenous knowledge systems and their role in economic development. The methodology section outlines the data collection strategies, research design, and analytical methods employed. Following that, the results section presents key findings from both quantitative analyses and qualitative case studies. The discussion section interprets these outcomes, highlighting the implications for policy and practice. Finally, the conclusion summarizes the main insights and offers recommendations for sustainable development, particularly for policymakers engaged in rural and tribal development initiatives.

In articulating the significance of traditional knowledge systems, this paper emphasizes that these practices are not static relics of an ancient past but dynamic processes that continue to evolve. They embody principles of sustainability, eco-centric management, and social equity—values that are increasingly recognized as essential for modern development. By revisiting and reinvigorating these traditional approaches, rural economies can become more adaptive and resilient in the face of contemporary challenges. Thus, this study not only documents successful instances of economic upliftment in tribal communities but also lays the groundwork for integrating indigenous wisdom into future rural development strategies.

Literature Review

The body of literature surrounding traditional Indian knowledge systems and their economic implications is vast yet fragmented. Over the past few decades, scholars have sought to reframe indigenous practices in the context of modern development, with a particular focus on sustainable resource management, community governance, and alternative agricultural practices. This literature review aggregates insights from multiple disciplines—anthropology, development economics, environmental studies, and sociology—to provide a nuanced understanding of the subject.

More recent studies have explored the interaction between traditional knowledge and modern economic systems. For instance, the work of Kumar and Das (2013) provides empirical evidence that indigenous water harvesting techniques improve water availability and contribute to increased agricultural productivity in semi-arid regions. Their study in rural Odisha demonstrates that integrating traditional rainwater harvesting structures with modern irrigation systems resulted in a 17% improvement in crop yields over five years. Similarly, Gupta et al. (2016) analyzed the revitalization of traditional handicrafts in tribal settlements of Jharkhand, finding that artisanal communities which revived indigenous design elements experienced a 20% increase in market prices and enhanced income stability.

More recent studies have examined the interplay between traditional knowledge and modern economic systems. For instance, the work of Kumar and Das (2013) provides empirical evidence on how indigenous water harvesting techniques not only improve water availability but also contribute to increased agricultural productivity in semi-arid regions. Their study in rural Odisha demonstrated that integrating traditional rainwater harvesting structures with modern irrigation systems resulted in a 17% improvement in crop yields over a five-year period. In a similar vein, Gupta et al. (2016) analyzed the revitalization of traditional handicrafts in tribal settlements of Jharkhand, finding that

artisanal communities that revived indigenous design elements experienced a 20% rise in market prices and enhanced income stability.

Additional contributions in the literature focus on the social and political dimensions of traditional knowledge. Bhatnagar (2011) and Mehta (2014) argue that traditional practices often embody a decentralized form of governance that facilitates community-led decision-making and fosters socio-economic equity. Such grassroots initiatives, they assert, are instrumental in promoting inclusive development. In the context of rural India, the successful integration of traditional systems into the modern economic framework is seen as a critical strategy for reducing inequalities and enhancing community resilience.

Despite these promising findings, several scholars highlight limitations and challenges. Critics such as Verma (2017) contend that the romanticization of traditional knowledge risks oversimplifying the complexities of modern economic demands. Issues such as scalability, standardization, and integration with formal institutions require careful consideration. Moreover, a notable gap often exists between local practices and the policy frameworks governing resource allocation and rural financing. To address these concerns, some researchers advocate for a hybrid model that blends traditional wisdom with selective modern technologies—a model that this paper seeks to empirically evaluate.

The debate is further enriched by comparative studies that analyze traditional knowledge systems in different geographical and socio-economic contexts. For example, studies in sub-Saharan Africa (e.g., Nkurunziza, 2015) have provided valuable lessons on the potential for indigenous systems to improve local economies through practices such as community-based natural resource management. These insights are highly relevant to the Indian scenario, where the parallel existence of modern and traditional systems presents both opportunities and challenges.

This literature review thus sets the stage for the present investigation by highlighting both the economic potential and the operational challenges of traditional Indian knowledge systems. It establishes that while indigenous practices have demonstrable benefits in terms of resource conservation, income generation, and social cohesion, their impact is often mediated by external factors such as government policies, market access, and education levels. In synthesizing the existing body of research, this review provides a conceptual framework for analyzing how traditional knowledge can be directly linked to economic development in rural communities.

In summary, the literature supports the notion that traditional knowledge systems can play a pivotal role in rural development when integrated into a supportive policy environment. However, there is a clear need for further empirical studies to assess the magnitude of this impact and to identify the conditions under which traditional practices yield maximum economic benefits. The subsequent sections of this paper build on these insights by presenting a robust methodological framework and analyzing primary data collected from the four targeted states.

Methodology

The research methodology adopted in this study is designed to explore the multifaceted impact of traditional Indian knowledge systems on rural economic development. Given the complex interplay between indigenous practices, socio-economic factors, and local policy environments, a mixed-methods approach was chosen to capture both quantitative and qualitative dimensions.

Study Area and Sample Selection: The study focuses on four Indian states—Madhya Pradesh, Odisha, Jharkhand, and Chhattisgarh—each characterized by significant tribal populations and rich reservoirs of traditional knowledge. Within these states, a stratified random sampling technique was utilized to select rural villages that exhibit a high concentration of indigenous practices. The sampling criteria were based on parameters such as population density, accessibility to local resources, the presence of community-led initiatives, and historical data on rural income levels.

Data Collection: Primary data were collected over a period of 18 months through a combination of structured surveys, key informant interviews, and participatory rural appraisals (PRAs). The surveys were administered to over 1,200 households across the four states and were designed to capture data related to income sources, expenditures, and the adoption of traditional practices in various economic activities. Interviews were conducted with local leaders, traditional knowledge practitioners, artisans, and government officials to obtain in-depth perspectives on the evolution and economic impact of indigenous systems. In addition, secondary data, including state government reports and census data, were used to triangulate findings.

Advanced statistical techniques, including regression analysis and difference-in-difference (DiD) estimations, were employed to determine the causal impact of traditional knowledge on economic performance. For instance, regression models were utilized to ascertain the correlation between the adoption of traditional water harvesting practices and improvements in crop yields. These analyses were further strengthened by the inclusion of control villages that do not predominantly practice indigenous methods.

Qualitative Analysis: To complement the quantitative findings, qualitative data were analyzed using thematic content analysis. Interview transcripts and PRAs were systematically coded to identify recurring themes such as sustainability, community governance, market integration, and resistance to modernization. This qualitative approach provided a nuanced understanding of how traditional knowledge is perceived and practically implemented at the grassroots level. In particular, narratives from community leaders revealed insights into the spiritual and cultural dimensions of indigenous practices, their impact on social cohesion, and their potential to transform local economies.

Case Studies: Four detailed case studies were developed, one from each selected state, to illustrate the local adaptations of traditional practices. For example, a case study from a village in Odisha documented the success of an integrated water management program that combined traditional rainwater harvesting techniques with modern irrigation systems. Another case from Jharkhand analyzed the revival of handicraft traditions and its linkage with emerging niche markets in organic and sustainable products. Each case study highlighted the unique challenges and opportunities encountered in the operationalization of traditional knowledge.

To ensure the validity and reliability of the findings, the research design incorporated several cross-validation mechanisms. Data triangulation was achieved by comparing survey results with government reports and field observations. Furthermore, feedback sessions were conducted with community representatives to verify the accuracy of qualitative interpretations. Potential biases were minimized by ensuring that survey instruments were administered by trained local fieldworkers fluent in regional dialects.

Limitations: Despite the robust mixed-methods design, this study acknowledges certain limitations. The diversity of indigenous practices across different regions means that generalizations

may not capture the complete heterogeneity of traditional knowledge. Moreover, the cross-sectional nature of certain data sets limits the ability to make long-term causal inferences. Nonetheless, these limitations are offset by the triangulation of multiple data sources and the integration of both qualitative and quantitative methods.

In summary, the methodological framework adopted in this research provides a comprehensive foundation for analyzing how traditional Indian knowledge systems influence rural economic development. The combination of rigorous statistical analysis with rich qualitative insights ensures that the study not only quantifies economic outcomes but also elucidates the mechanisms through which indigenous practices exert their impact.

Results

The analysis of the data collected from the selected villages in Madhya Pradesh, Odisha, Jharkhand, and Chhattisgarh reveals significant economic impacts stemming from the application of traditional Indian knowledge systems. The results are presented in two parts: quantitative outcomes and qualitative insights derived from case studies.

Quantitative Findings: The econometric analyses indicated a measurable correlation between the adoption of traditional practices and an increase in rural household incomes. For instance, regression models revealed that households relying on traditional agricultural methods—specifically organic farming, mixed cropping, and indigenous pest management—recorded an average income increase of 15% over a five-year period compared to those employing conventional methods. Moreover, the difference-in-difference analysis across treatment (traditional practices) and control (modern practices) groups confirmed that the adoption of indigenous water harvesting techniques was associated with a statistically significant increase in crop yield, estimated at an average of 17%.

Further examining artisanal activities, the data showed that local handicrafts practitioners who incorporated traditional designs and techniques achieved a 20% premium in market pricing. This premium was particularly evident in regions where government-run promotional campaigns bolstered demand for indigenous products. Employment data similarly indicated that communities actively engaged in traditional craft revival programs experienced a 12% reduction in rural unemployment over a three-year horizon.

Additionally, survey responses from more than 1,200 households revealed improved access to credit and microfinance opportunities for those who demonstrated a commitment to preserving indigenous practices. Approximately 65% of these households reported increased financial stability, citing community cooperatives that emphasized the sustainable management of natural resources. Overall, the quantitative data underscores that the integration of traditional knowledge is strongly linked with enhanced economic outcomes in rural areas.

Qualitative Insights and Case Studies: The fieldwork yielded rich qualitative insights that reinforce the statistical findings. In a detailed case study from a village in Odisha, traditional rainwater harvesting techniques were reintegrated with modern irrigation systems. Local records indicated that the village's staple crop production increased by nearly 18% following the intervention, with a corresponding rise in income from agricultural sales. Interviews with local farmers highlighted the community's renewed interest in indigenous methods that not only improved water conservation but also promoted sustainable farming practices.

In a compelling case from Jharkhand, the revival of indigenous handicrafts was examined. Artisans who had previously abandoned traditional weaving techniques in favor of mass-produced alternatives reported a remarkable turnaround after participating in a government-sponsored revitalization scheme that provided training, design reinvention, and market linkage support. Consequently, the average income from handicraft sales increased by 25%, enabling numerous artisans to secure long-term contracts with regional and international buyers.

In Madhya Pradesh, a pilot project that combined the use of indigenous medicinal practices with modern health outreach programs resulted in the establishment of rural health centers that not only improved community health outcomes but also created ancillary revenue streams. The centers marketed locally sourced herbal products and traditional remedies, thereby generating additional income for rural households. Interviews with health practitioners emphasized that the integration of ancient healing knowledge with modern public health strategies significantly enhanced community well-being.

Finally, in Chhattisgarh, the emphasis on traditional organic farming practices helped a cluster of villages transition away from dependency on chemical fertilizers. Field observations noted a substantial increase in soil fertility and crop quality. Local cooperatives that promoted organic produce succeeded in capturing premium prices in urban markets, thereby reaffirming the economic viability of indigenous practices.

The combination of these quantitative analyses and qualitative narratives provides a comprehensive picture of how traditional Indian knowledge systems can serve as a transformative tool for rural development. The empirical evidence from the four states consistently demonstrates that the strategic integration of indigenous practices into local economic systems can lead to significant improvements in income, employment, and overall community resilience.

Discussion

The results of this study clearly indicate that traditional Indian knowledge systems have the potential to play a transformative role in the economic development of rural India. This discussion section interprets the findings in light of existing literature, examines the mechanisms by which traditional practices exert their influence, and explores the policy implications for sustainable rural development.

One of the critical observations from the analysis is the positive correlation between the adoption of indigenous agricultural practices and increased rural incomes. Traditional farming methods, which emphasize organic inputs, mixed cropping, and minimal reliance on chemical fertilizers, not only enhance soil fertility but also create niche market opportunities for organic produce. This finding aligns with previous studies (Kumar & Das, 2013) and underscores the importance of sustainable agricultural practices in addressing both economic and environmental challenges. By leveraging their deep-rooted understanding of local ecosystems, rural communities can enhance crop resilience and secure higher returns on their produce.

The revitalization of traditional handicrafts, as evidenced in the Jharkhand case study, further illustrates how indigenous practices contribute to economic upliftment. In a global market that increasingly values authenticity and sustainability, traditional artisanal products have gained

significant traction. The observed 20–25% premium attached to these products is a testament to the market's readiness to reward authenticity. However, the success of such initiatives is contingent upon effective marketing strategies and supportive government policies that facilitate access to both domestic and export markets.

The integration of traditional medicinal practices with modern health outreach, as observed in Madhya Pradesh, presents another compelling example of how indigenous knowledge can foster economic diversification. The dual benefits of improved public health and revenue generation through the commercialization of herbal products suggest that traditional knowledge can bridge the gap between cultural preservation and modern economic development. This integrative approach not only enhances community welfare but also creates sustainable economic value.

The case of water harvesting in Odisha provides an instructive example of how traditional practices can directly address environmental challenges while simultaneously boosting economic productivity. In regions prone to water scarcity, indigenous rainwater harvesting techniques have proven instrumental in ensuring agricultural stability. The corresponding increases in crop yields and household incomes further confirm that local knowledge can offer robust solutions in the context of climate change.

Although the empirical evidence is promising, the practical implementation of traditional knowledge systems in economic development is not without challenges. One significant barrier is the fragmentation of knowledge among communities. The loss of oral traditions and the gradual erosion of indigenous practices, often exacerbated by rapid urbanization, pose serious risks to the sustainability of these systems. Moreover, the institutional frameworks currently in place tend to prioritize modern technological solutions over local, traditional practices. This disconnect necessitates a deliberate effort to institutionalize traditional knowledge in policy and educational curricula.

Additionally, the scalability of traditional practices remains a critical area for further investigation. While pilot projects in select villages have demonstrated considerable success, replicating these results on a broader scale will require tailored approaches that account for regional variations. For instance, implementation strategies that work in Odisha may not be directly transferable to the tribal communities of Chhattisgarh due to differing ecological and cultural contexts. Policymakers must therefore adopt flexible frameworks that allow for localized adaptations, ensuring that traditional practices are scaled in a manner that respects community-specific dynamics.

The discussion highlights the necessity for increased investment in capacity building and institutional support. Government agencies should prioritize initiatives that document, preserve, and share indigenous knowledge. Establishing knowledge hubs, creating partnerships with academic institutions, and providing microfinance support to traditional practitioners are essential steps forward. Moreover, fostering public–private partnerships can help bridge the gap between traditional practices and modern market demands. By aligning these diverse elements, policymakers can create a more holistic and integrated approach to rural development.

In summary, the findings of this study advocate for the inclusion of traditional Indian knowledge systems within the broader framework of rural economic development. The empirical data underscore how indigenous practices can drive improvements in income, employment, and overall well-being. Simultaneously, the study outlines the necessary conditions—such as policy reforms, capacity

building, and adaptive implementation—that are critical for realizing the full potential of these traditional systems. As such, the integration of indigenous knowledge should be viewed not as a nostalgic return to traditionalism, but as a forward-looking strategy that aligns with contemporary sustainable development goals.

Conclusion

This research paper has examined the multifaceted role of traditional Indian knowledge systems in fostering economic development in rural India. By systematically analyzing the impact of indigenous practices from four states with significant tribal populations—Madhya Pradesh, Odisha, Jharkhand, and Chhattisgarh—the study has provided both quantitative evidence and rich qualitative insights to support the hypothesis that integrating traditional wisdom into modern economic frameworks can yield substantial benefits.

The results indicate that indigenous practices—including organic farming, water harvesting, artisanal craftsmanship, and traditional health care—are directly correlated with increased rural incomes, improved employment outcomes, and enhanced resource management. In addition, the role of the Surabhi Foundation and the Honey Bee Network in promoting these practices during the period from 2010 to 2025 is significant, as they have facilitated knowledge sharing, capacity building, and the integration of local innovations with modern economic frameworks. The case studies demonstrate that these practices deliver broader socio-economic benefits, such as social cohesion, sustainable environmental stewardship, and community empowerment.

The study also underscores that traditional knowledge systems are not static relics but dynamic, evolving processes that can be strategically harnessed to address contemporary challenges. Given the threats posed by environmental degradation, rural poverty, and socio-economic inequity, the integration of indigenous practices must be recognized as an essential component of any comprehensive rural development strategy.

In light of these findings, the following recommendations are proposed for policymakers and stakeholders involved in rural and tribal development: Institutionalize the documentation and dissemination of traditional knowledge through the creation of local knowledge hubs and digital repositories, potentially in collaboration with organizations like the Surabhi Foundation and the Honey Bee Network, which have been active in this field from 2010 to 2025.

- Document and disseminate traditional knowledge by creating local knowledge hubs and digital repositories.
- Provide targeted capacity-building programs and microfinance support to traditional practitioners and community cooperatives.
- Promote public–private partnerships that facilitate the market integration of indigenous products, particularly in sectors such as organic agriculture and artisanal crafts.
- Integrate traditional knowledge and practices into educational curricula at all levels to preserve cultural heritage while fostering innovation.
- Adopt flexible policy frameworks that allow for localized adaptations of traditional practices, ensuring scalable and sustainable development tailored to local ecological and cultural contexts.

By adopting these measures, the economic potential embedded within traditional Indian knowledge systems can be fully harnessed, thereby providing a robust foundation for sustainable rural development in India. Future research should build upon the findings of this study by exploring long-term impacts and further refining strategies for the integration of traditional practices into modern economic policies.

In conclusion, traditional Indian knowledge systems represent a viable pathway for achieving economic resilience in rural areas. The combination of time-tested indigenous practices with contemporary economic strategies offers a promising avenue for both preserving cultural heritage and promoting inclusive growth. It is crucial for policymakers and development practitioners to recognize and support these efforts, paving the way for a sustainable future in rural India.

The insights derived from this research offer significant implications for future policy frameworks and development initiatives, urging a shift away from solely high-tech modernization. Instead, by embracing the wisdom of traditional Indian knowledge systems, rural India can achieve not only economic prosperity but also a harmonious balance between cultural heritage and sustainable development.

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ग्रामीण आधारभूत संरचना का विकास एवं बाजार तक पहुँच

हिमांशु यादव[1]

संक्षेप

आजादी के समय से ही ग्रामीण अर्थव्यवस्था भारतीय अर्थव्यवस्था का मुख्य आधार रही है। ग्रामीण अर्थव्यवस्था मुख्यतयः प्राथमिक क्षेत्र आधारित व्यवस्था रही है। देश की जी0डी0पी0 का 18.20 प्रतिशत प्राथमिक क्षेत्र आधारित है, जो देश के एक बड़े वर्ग को रोजगार उपलब्ध कराता है। इस क्षेत्र की मूलभूत समस्याएँ जैसे– सड़क, सिंचाई, बाड़, भण्डारण, बाजार तक पहुँच, स्वास्थ्य केन्द्रों की कमी आदि है। ग्रामीण बुनियादी ढाँचे को मजबूत करने के लिए सरकार द्वारा समय–समय पर अनेक योजनाएँ चलायी जाती रही हैं। जिससे ग्रामीण बुनियादी ढाँचा मजबूत हो सके, ग्रामीण बुनियादी ढाँचे को मजबूत करने के लिए सड़को का निर्माण, सिंचाई की व्यवस्था, हर घर को बिजली की सुविधा से जोड़ना, लोगों को प्रशिक्षित करना, सबको आवास प्रदान करना, शुद्ध पेय जल की उपलब्धता सुनिश्चित करना, ग्रामीणों को रोजगार प्रदान करना आदि कदम उठाये जा रहे हैं।

इन समस्याओं के साथ ही ग्रामीण क्षेत्र की मुख्य समस्या रही है, उत्पादों की बाजार तक पहुँच। भण्डारण की व्यवस्था का न होना, सड़कों तथा रेल मार्गों का आभाव, बाजारों की सीमित संख्या आदि कारणों से उत्पादों को सही मूल्य नहीं मिल पाता। विश्वस्नीय बाजार तक पहुँच, उत्पादकता में वृद्धि, आय में वृद्धि तथा खाद्य सुरक्षा को गति प्रदान करती है। यह उत्पादन में लगे परिवारों की गरीबी घटाने तथा भूख मिटाने में सहायक साबित होगा। यदि उचित कदम उठाये जाये तो बाजार जोखिम तथा असमान बाजार प्रणाली की अनियमित्तओं से छुटकारा पाया जा सकता है। ग्रामीण क्षेत्रों के उत्पादक अपने उत्पाद के लिए बाजार खोजने तथा उनको बाजार में बेंचने में कठिनाई अनुभव करते हैं। उनकी बाजार तक पहुँच सीमित है, क्योंकि वे दूरस्थ क्षेत्रों में निवास करते हैं। जिसके कारण उनकी परिवहन लागत उच्च है, उनके पास सीमित ज्ञान है तथा व्यापार कुशलता का आभाव है। इसलिए बाजार तक पहुँच उनकी मोल–भाव क्षमता को बढ़ावा देगी तथा उनके उत्पादों को सही दाम मिलेगा।

परिचय

महात्मा गांधी ने कहा था भारत का भविष्य उसके गांवों से बसता है। किसी भी राष्ट्र को आर्थिक विकास के लिए आर्थिक संरचना का मजबूत होना आवश्यक है। भारत आज महात्मा गांधी के ग्रामीण

1. शोध छात्र – (अर्थशास्त्र विभाग), डॉ राममनोहार लोहिया अवध विश्वविद्यालय, अयोध्या, (उ0प्र0)।

भारत के उत्पादन के पावर हाउस बनने की ओर अग्रसर है। गांवों में सुव्यवस्थित बुनियादी ढाँचा ग्रामीण अर्थव्यवस्था को बढ़ावा देकर देश को 5 ट्रिलियन डॉलर की अर्थव्यवस्थ बनाने के अपने महत्वकांक्षी लक्ष्य को प्राप्त करने में कदद कर सकता है। आर्थिक बुनियादी ढाँचे के अन्तर्गत पेय जल, स्वच्छता, परिवहर, संचार, बिजली, सिंचाई, भण्डारण, आवास आदि आते हैं। ये सभी क्षेत्र ग्रामीण विकास की अवधारणा में महत्वपूर्ण योगदान प्रदान करते हैं। इन क्षेत्रों के विकास के साथ–साथ बुनियादी ढाँचे के विकास से निवेश दक्षता में वृद्धि होती है, विनिर्माण में प्रतिस्पर्धात्मकता आती है और निर्यात, रोजगार, ग्रामीण विकास को बढ़ावा मिलता है साथ ही जीवन की गुणवत्ता में सुधार होता है।

आधारभूत संरचना को अलग–अलग रूप से परिभाषित किया गया है। राकेश मोहन कमेटी तथा केन्द्रीय सांख्यिकीय संगठन ने बुनियादी ढाँचे के अन्तर्गत बिजली, गैस, जल आपूर्ति, दूर संचार, सड़क, औद्योगिक पार्क, रेलवे, बन्दरगाह, हवाई अड्डे, ग्रामीण असंरचना तथा कोल्ड स्टोरेज के ढाँचे को शामिल किया गया है।

भारत सरकार द्वारा ग्रामीण आधारभूत संरचना को विकसित करने के लिए विभिन्न योजनाएं चलायी जा रही हैं। ग्रामीण विकास मंत्रालय भारत सरकार का ग्रामीण विकास के लिए विभिन्न लक्ष्यों को ध्यान में रखकर उसके अन्तर्गत अनेक कार्य किये जा रहे हैं। मंत्रालय के निम्नलिखित लक्ष्य हैं–

- मनरेगा योजना के अन्तर्गत ग्रामीण क्षेत्रों में टिकाऊ और उत्पादक परिसम्पत्तियों पर जोर देते हुए मजदूरी सुरक्षा उपलब्ध कराना।
- सड़कों से न जुड़े गांवों को हरित प्रौद्योगिकियाँ अपनाते हुए अच्छी गुणवत्तापूर्ण बारहमासी सड़कों, मौजूदा ग्रामीण सड़क नेटवर्क उन्नयन और सुदृढ़ीकरण के माध्यम से सड़कों को जोड़ना।
- बेघर/कच्चे मकानों में रह रहे ग्रामीण परिवारों के लिए आधारभूत सुविधाओं से सम्पन्न पक्के मकान उपलब्ध कराना।
- कृषि (जलवायु परिवर्तन के अनुकूल कृषि पारिस्थितिकीय पद्धतियों) एन.टी.एफ.पी., पशुधन और अन्य कृषि आधारित कार्यकलापों में स्थायी पद्धतियों को बढ़ावा देना।
- उच्च क्रम आर्थिक गतिविधियों के लिए स्वयं सहायता समूहों से जोड़ना।
- पारिश्रमिक वाले रोजगार के लिए स्वरोजगार और मजदूरी रोजकार हेतु कौशल प्रशिक्षण।
- छोटे एवं सीमान्त किसानों और असंगठित कामगारों सहित समस्त वंचित वर्गों के लिये सर्वव्यायी लाभ प्रदान करना।
- आर्थित कार्यकलाप केन्द्र बने, ग्रोथ क्लस्टर और ग्राम पंचायतों को सरकारी योजनाओं के बीच ताल–मेल के माध्यम से विकसित करना।

इन सभी लक्ष्यों की पूर्ति के लिए सरकार द्वारा विभिन्न योजनाएं चलायी गई हैं, जिनका विवरण निम्न है–

महात्मा गांधी राष्ट्रीय ग्रामीण रोजगार गारण्टी अधिनियम (महात्मा गांधी नरेगा)

ग्रामीण विकास मंत्रालय द्वारा वर्ष 2005 में शुरू किये गए विश्व के सबसे बड़ो रोजगार गारण्टी कार्यक्रमों में से एक है। ये योजना न्यूनतम वेतन पर सार्वजनिक कार्यों से सम्बन्धित अकुशल शारीरिक

कार्य करने के इच्छुक किसी भी ग्रामीण परिवार के व्यस्क सदस्यों को प्रत्येक वित्तीय वर्ष में न्यूनतम 100 दिनों का कानूनी गारण्टी प्रदान करता है। वर्तमान समय में मनरेगा में 14.32 करोड़ ग्रामीण कार्यरत हैं (सत्र 2023–24)।

कोविड महामारी के बीच शहरी और ग्रामीण क्षेत्रों के मजदूरी और दिहाड़ी मजदूर सबसे ज्यादा प्रभावित हुये। मध्य प्रदेश, छत्तीसगढ़, बिहार, उत्तर प्रदेश, पं.बंगाल जैसे राज्यों में प्रवासी श्रमिकों की बड़ी संख्या थी। मनरेगा सम्बंधी कार्य अप्रैल में फिर शुरू किये गये जिससे लोगों को रोजगार मिला और 6 महीने के भीतर 5 करोड़ से अधिक परिवारों को लाभ हुआ।

- वर्तमान समय में देशभर में लगभग 11.37 करोड़ परिवारों को रोजगार मिला है।
- इसमें से 289.24 करोड़ व्यक्ति दिवस रोजगार उत्पन्न हुआ, जिसमें :
- 56.19 प्रतिशत महिलाएं हैं।
- 19.75 प्रतिशत अनुसूचित जाति।
- 17.47 प्रतिशत अनुसूचित जनजाति।

इस योजना के अन्तर्गत अमृत सरोवर योजना (सतही तथा भूमिगत जल की उपलब्धता बढ़ाना), जलदूत ऐम (पंचायत में जलस्तर मापन), मनरेगा के लिए लोकपाल (शिकायत निवारण) आदि पहले शुरू की गई है।

दीनदयाल अंत्योदय योजना– राष्ट्रीय ग्रामीण आजीविका मिशन (डी.ए.वाई.एन.आर.एल.एम.)

गरीबों को जमीनी स्तर की मजबूत और स्थायी संस्थाओं का विकास करके गरीब परिवारों को लाभदायक स्वरोजगार और कुशल मजदूरी रोजगार के अवसर पाने और उसके परिणामस्वरूप अपनी आजीविकाओं में स्थायी सुधार लाने योग्य बनाकर गरीबी कम करना।

29 मार्च, 2016 को राष्ट्रीय ग्रामीण आजीविका मिशन का नाम बदलकर दीनदयाल अंत्योदय योजना– राष्ट्रीय ग्रामीण आजीविका मिशन कर दिया गया। इस योजना ने देश के 600 जिलों, 6000 ब्लॉकों, 2.5 लाख ग्राम पंचायतों और 6 लाख गांवों में 7 करोड़ ग्रामीण गरीब परविारों को स्वप्रबन्धित स्वयं सहायता समूहों और संघीय संस्थानों के माध्यम से कवर करने और 8–10 वर्षों की अवधि में आजीविका सामूहिकता के लिए उनके समर्थन करने का एजेण्डा बनाया है।

इस योजना का लक्ष्य वित्तीय वर्ष 2023–24 तक ग्रामीण गरीब परिवारों की 10 लाख महिलाओं तक पहुँचना है। 31 जनवरी, 2024 तक 9.98 करोड़ महिलाओं को 90.99 लाख स्वयं सहायता समूहों में संगठित किया जा चुका है। इस योजना ने बाजार सम्पर्क बढ़ाने के लिए मूल्य श्रृंखला विकास हस्तक्षेप बनाने पर महत्वपूर्ण प्रयास किये हैं। इसका उद्देश्य प्राथमिक उत्पादकों को उत्पादक संगठन बनाने से लेकर विपणन सम्पर्क बनाने तक के लिये महत्वपूर्ण समाधान प्रदान करने के लिये सम्पर्ण व्यवसायिक मॉडल विकसित करना है।

दीनदयाल उपाध्याय ग्रामीण कौशल योजना (डी.डी.यू.जी.के.–वाई)

- मजदूरी रोजगार के लिये 2014 में संचालित रोजगार आधारित कौशल विकास कार्यक्रम।
- 27 राज्यों, 3 संघ राज्य क्षेत्रों में 1707 सक्रिय प्रशिक्षण केन्द्रों में 675 प्रशिक्षण भागीदारों के साथ कार्यान्वित किया जा रहा है।
- 561 क्षेत्रों को शामिल करते हुए 55 क्षेत्रों में प्रशिक्षण दिया जा रहा है।
- वर्ष 2014 में शुरूआत से लेकर कुल 10,42,251 अभ्यर्थियों को प्रशिक्षण तथा 6,42,078 अभ्यर्थियों को रोजगार प्रदान किया गया है।
- सागर माला परियोजना में 22 तटीय जिलों में 33 हजार युवाओं को समुंद्र सम्बन्धी व्यापार में प्रशिक्षित किया गया है।
- सभी राज्यों में स्थापित किये जाने वाले प्रवासन सहायता केन्द्रों के लिये दिशा–निर्देशों को संशोधित किया गया।

ग्रामीण आवास योजना– ग्रामीण

वर्ष 2022 तक सभी के लिये आवास के उद्देश्य को प्राप्त करने के लिये 01 अप्रैल, 2016 को पूर्ववर्ती इन्दिरा आवास योजना का पुनर्गठन कर उस प्रधानमंत्री आवास योजना ग्रामीण कर दिया गया। सभी ग्रामीण परिवारों को आवासहीन और कच्चे तथा जीर्ण–शीर्ण घरों में रहने वाले लोगों को बुनियादी सुविधाओं के साथ पक्के घर उपलब्ध कराना, इसके लाभार्थियों में एस.सी., एस.टी. मुक्त बंधुआ मजदूर और गैर एस.टी., एस.टी. श्रेणियाँ, विधवाओं या कार्यवाही में मारे गए रक्षाकर्मियों के परिजन, पूर्व सैनिक एवं अर्धसैनिक बलों के सेवानिवृत्त सदस्य, विकलांग व्यक्ति तथा अल्पसंख्यक शामिल हैं।

प्रधानमंत्री ग्राम सड़क योजना

ग्रामीण सम्पर्क प्राप्त करने के उद्देश्य से भारत सरकार ने 25 दिसम्बर, 2000 को प्रधानमंत्री ग्राम सड़क योजना शुरू किया। जिसका उद्देश्य मैदानी क्षेत्रों में 500 तक की जनसंख्या वाले क्षेत्रों तथा विशेष श्रेणी के राज्यों (पूर्वोत्तर, जम्मू–कश्मीर, हिमाचल प्रदेश, उत्तराखण्ड) में 250 और उससे अधिक जनसंख्या वाले रेगिस्तानी क्षेत्रों तथा गरीबी उनमूलल की रणनीति के रूप में चयनित 88 पिछड़े जिलों में सड़क निर्माण करना। इस योजना के तहत 6,80,040 कि.मी. सड़क का निर्माण किया।

सौभाग्य योजना (प्रधानमंत्री सहज बिजली हर घर योजना)

सरकार ने शत–प्रतिशत ग्रामीण विद्युतीकरण हासिल करने की दिशा में कदम बढ़ाते हुए देश की सभी गैर विद्युतीकृत घरों का विद्युतीकरण हासिल करने पर ध्यान केन्द्रित किया है। इन आवश्यकताओं पर ध्यान रखते हुए भारत सरकार ने अक्टूबर, 2017 में सौभाग्य योजना को लॉन्च किया, जिसमें देश के सभी घरों में अन्तिम छोर कनेक्टिविटी और बिजली कनेक्शन पर ध्यान केन्द्रित किया गया है। इसके सम्बन्ध में 18.85 लाख घरों का विद्युतीकरण किया गया है और राज्यों में 31 मार्च 2019 से पूर्व अभिज्ञात सभी इच्छुत घरों के 100 प्रतिशत बिजली कनेक्शन की सूचना दी।

प्रधानमंत्री कृषि सिंचाई योजना

01 जुलाई, 2015 को लॉन्च कृषि योजना का मुख्य लक्ष्य हर खेत को पानी प्रदान करना है, साथ में स्त्रोत निर्माण वितरण, प्रबन्धन, क्षेत्र अनुप्रयोग और विस्तार गतिविधियों पर अन्तिम समाधान के साथ केन्द्रित तरीके से प्रति भूमि अधिक फसल प्राप्त करना है। जिससे कम पानी खर्च में अधिक फलस उगाई जा सके।

ग्रामीणों की बाजार तक पहुँच

ग्रामीण अवसंरचना विकास के साथ–साथ ग्रामीणों की बाजार तक पहुँच सुनिश्चित करना भी एक चुनौतीपूर्ण कार्य है। ग्रामीण क्षेत्र की सबसे बड़ी समस्या अपने उत्पाद को उचित मूल्य दिलाना तथा मोल–भाव की क्षमता का विकास करना है। परन्तु ग्रामीण उत्पादकों की बाजार से दूरी इसमें सबसे बड़ी बाधक है। ये बाजार काफी हद तक असंगठित है, जहाँ सामान्यतः जनसंख्या बिखरी हाती है। इसके अलावा बढ़े भौगोलिक क्षेत्र होने के कारण सांस्कृतिक और भाषायी विविधता के साथ–साथ जाति आधारित व्यवस्था के चलते भी हर गांव के लिए व्यक्तिगत भिन्नता होती है।

ग्रामीण क्षेत्रों में गोदामों के रूप में भण्डारण सुविधायें उपलब्ध नहीं है। माल को उचित स्थिति में रखने के लिए उपलब्ध गोदामों का उचित रख–रखाव नहीं हो पाता है। यह एक बड़ी समस्या है, जिसके कारण ग्रामीण क्षेत्रों में भण्डारण लागत बढ़ जाती है। ग्रामीण बाजार बिखरे हुए हैं और छोटे–छोटे होते हैं, जिसकी वजह से उनके लिये विक्रय बल की व्यवस्था करना भी कठिन होता है। विक्रय कार्य में संलग्न व्यक्ति ग्रामीण बाजारों में विक्रय करना कम पसन्द करते हैं, क्योंकि उनको अधिक प्रयास करने पर भी कम आय प्राप्त होती है।

ग्रामीण बाजारों में पहुँच की राह हालांकि काफी कठिनाइयों से भरी है, लेकिन कुछ उपाय के जरिये इनकरो दूर करके एक बड़े उपभोक्ता वर्ग तक पहुँचा जा सकता है। विद्युतीकरण, ग्राम सड़क योजना और गांव में मुत वाई–फाई उपलब्ध कराने जैसी नवीनतम सरकारी पहलों के कारण परिदृश्य में कुछ बदलाव आने शुरू हुए हैं।

व्यवस्थित और पारदर्शी विपणन की दशाओं का निर्माण करने के लिए बाजार नियमन की नीति से कृषक और उपभोक्ता दोनों को लाभान्वित किया जा सकता है, पर अभी भी लगभग 27 हजार ग्रामीण क्षेत्रों में अनियमित मण्डियां हैं, उनको विकसित करने की आवश्यकता है। सड़कों, रेल मार्गों, भण्डार गृहों, गोदामों, शीत गृहों और प्रसंस्करण इकाईयों के रूप में उपलब्ध भौतिक आधारभूत सुविधायें इन क्षेत्रों की बढ़ती मांग को देखते हुए अपर्याप्त हैं। इनकी संख्या बढ़ाने की आवश्यकता है। सहकारी विपणन द्वारा किसानों को अपने उत्पादों का उचित मूल्य सुलभ कराना भी जरूरी है, ताकि उनको कृषि एवं अन्य उत्पादों का उचित मूल्य मिल सके और वे बिचौलियों के शोषण से मुक्त रह सके। ऑनलाइन मार्केटिंग ग्रामीण बाजारों में पहुँच की दिशा में महत्वपूर्ण सहयोग कर सकता है, इसके द्वारा सीधे ग्राहकों तक पहुँचा जा सकता है।

निष्कर्ष

इस प्रकार हम देखते हैं कि ग्रामीण क्षेत्र की अवसंरचना यदि मजबूत रहेगी तो देश का आर्थिक विकास त्रीव गति से होगा, क्योंकि ग्रामीण क्षेत्रों से श्रम व कच्चे माल की आपूर्ति पर्याप्त रूप से होती है। ग्रामीण अवसंरचना विकास के लिये सरकार द्वारा कदम उठाये जा रहे हैं, जिससे ग्रामीण अवस्थापना मजबूत तथा सुदृढ़ हुई है। परन्तु अभी भी काफी काम किया जाना बाकी है। ग्रामीण उत्पादों को उचित मूल्य प्रदान करने के लिये बाजार श्रृंखला को विकसित किया जाना बाकी है, जिससे एक जगह के उत्पाद को पूरे देश तथा वैश्विक पहचान मिल सके।

सन्दर्भ सूची

1. केन्द्रीय बजट 2024
2. ग्रामीण विकास मंत्रालय की वेबसाइट।
3. बारहवीं पंचवर्षीय योजना, नीति आयोग, भारत सरकार।
4. जनसत्ता, समाचार पत्र।
5. केन्द्रीय सांख्यिकिय संगठन।
6. ग्रामीण बुनियादी ढांचे का विकास, डॉ. पी. केशव रॉय, डॉ. वी. माधव रॉय।

कृषि ऋण संबंधी हितग्राहियों की आर्थिक स्थिति का मूल्यांकन – बहराइच जिला सहकारी केन्द्रीय बैंक के संदर्भ में

सोनू सिंह[1] एवं प्रो० राजबीर सिंह[2]

सारांश

कृषि प्रधान होने के कारण उत्तर प्रदेश में सहकारिता आन्दोलन मुख्य रूप से ग्रामीण विकासोन्मुखी आन्दोलन के रूप में संचालित है। कृषि उत्पादन में बढ़ोत्तरी एवं कृषकों की आय में वृद्धि करके आर्थिक स्थिति सुदृढ़ करने हेतु कृषि एवं अन्य सम्बन्धित कायों के लिए त्रिस्तरीय सहकारी ढ़ांचे का गठन किया है। जिसमें जनपद स्तर पर जिला सहकारी बैंक कार्यरत हैं। यह बैंक कृषकों की वित्तीय आवश्यकताओं को पूरा करने में मदद करता है। इस शोध में उत्तर प्रदेश में ''बहराइच डिस्ट्रिक कोआपरेटिव बैंक बहराइच'' की सभी 10 शाखाओं से ऋण लेने वाले कृषकों की वार्षिक आय का अध्ययन करने पर यह निष्कर्ष निकाला गया है कि ऋण लेने के बाद जिन किसानो ने ऋणों का सही उपयोग कृषि कार्यों के लिए किया है उनकी वार्षिक आमदनी में निश्चित रूप से वृद्धि हुयी है।

प्रमुख शब्द *– ऋण, सहकारी बैंक, हितग्राही, वार्षिक आय।*

प्रस्तावना

भारत वर्ष अपनी विविधताओं के साथ अपने गौरवशाली इतिहास को भी समेटे हुए है, ऐतिहासिक दृष्टि से जनपद बहराइच का अतीत अत्यंत गौरवशाली और महिमा मंडित रहा है। पुरातात्विक, ऐतिहासिक, सांस्कृतिक, भौगोलिक तथा औद्योगिक दृष्टि से बहराइच का अपना विशिष्ट स्थान है। भारत के उत्तर प्रदेश राज्य में स्थित एक नगर है। बहराइच जिला मुख्यालय भी है। अत्यधिक घने जंगल और तीव्र बहती नदियाँ बहराइच जिले की प्रमुख आकर्षण हैं। बहराइच उत्तर प्रदेश के उन जनपदों में से एक है जहाँ अल्पसंख्यक आबादी का बाहुल्य है और जो आर्थिक रूप से पिछड़ा भी है। बहराइच जनपद देवीपाटन मण्डल डिवीजन के उत्तर–पश्चिम हिस्से में स्थित है। यह 28.24 से 27.4

1. शोध छात्र, अर्थशास्त्र विभाग, किसान स्नातकोत्तर महाविद्यालय, बहराइच, (उ0प्र0)।
2. शोध निर्देशक, अर्थशास्त्र विभाग, किसान स्नातकोत्तर महाविद्यालय, बहराइच, (उ0प्र0)।

उत्तरी अक्षांश और 81.65 से 81.3 पूर्वी देशान्तर के बीच स्थित है। 1991 के जिले के गजट के अनुसार इसका क्षेत्रफल 4696.8 वर्ग किमी है जो देवीपाटन डिवीजन का 31.99% है। जिला बहराइच के उत्तरी भाग पर नेपाल के साथ एक अन्तर्राष्ट्रीय सीमा है।

बहराइच जनपद की अर्थव्यवस्था कृषि पर आधारित है। इस क्षेत्र की मुख्य फसलों में गेहूँ, चावल, गन्ना, दालें एवं सरसों शामिल हैं। रेशम कीट पालन जनपद के अन्य व्यवसायों में से एक है। जनपद में कुल वनाच्छादित भूमि का क्षेत्रफल का क्षेत्रफल 67926 हेक्टेयर है, जो जनपद के कुल क्षेत्रफल का 13.97% है। इस क्षेत्र की अधिकतम औद्योगिक इकाइयाँ कृषि या वन आधारित उत्पादों पर निर्भर हैं। गेहूँ के डंठल से निर्मित हस्तकला यहाँ का एक मुख्य उत्पाद है। कृषि उत्पादों में गन्ना, गेहूँ, चावल व मक्का के साथ दलहनी फसलों में एक समय बड़े पैमाने पर मसूर का उत्पादन होता रहा है। लेकिन अब जिले को उत्तर प्रदेश में सर्वाधिक केला उत्पादन के लिये जाना जाता है। 5000 हेक्टेयर से अधिक में हो रहे केले के उत्पादन के लिए बहराइच जिला को एक जिला एक उत्पाद (One District, One Product [O.D.O.P.]) में चयनित किया गया है।

कृषि विकास में जिला सहकारी बैंक का योगदान महत्वपूर्ण रहा है। जनपद में 2020–21 में कुल 15 शाखायें सहकारी बैंक की थीं। जिसमें 158089 व्यक्तियों की सदस्यता थी। उक्त में 39394 हजार ध की हिस्सा पूँजी थी एवं 206130 हजार कार्यशील पूँजी थी तथा सहकारी बैंक द्वारा 288 हजार का अल्पकालीन ऋण वितरण किया गया।

अध्ययन का क्षेत्र– सहकारी बैंकिंग संरचना का भारत की ग्रामीण ऋण वितरण प्रणाली में एक अद्वितीय स्थान है। इन्होंने ग्रामीण क्षेत्र में महत्वपूर्ण प्रगति की है। कई वर्षों से वे अपने विशाल नेटवर्क, व्यापक कवरेज और देश के दूर दराज के हिस्सों तक फैली पहुँच के साथ प्रमुख संस्थागत एजेन्सी बने हुए हैं। भारत में बैंकिग क्षेत्र में अधिसूचित वाणिज्यिक बैंक, क्षेत्रीय ग्रामीण बैंक, लघु वित्त बैंक और सहकारी बैंक आते हैं। सहकारी बैंक निम्न आय वर्ग के लोगों को बैंकिंग सुविधाएं प्रदान करते हैं औरइस प्रकार वित्तीय समावेश का उद्देश्य पूरा होता है। 2015 तक सहकारी बैंकों के 90% ऋणों में से प्रत्येक पाँच लाख रुपये से कम के थे। जोकि इन बैंकों के कुल उधार का 33% है। सहकारी बैंक ऐसी सहकारी समितियाँ होते हैं जिनका मुख्य कारोबार बैंकिंग होता है। प्रस्तुत शोध में उत्तर प्रदेश के बहराइच जनपद में स्थित बहराइच डिस्ट्रिक्ट कोआपरेटिव बैंक की प्रधान शाखा बहराइच सदर शाखा तथा जनपद बहराइच की अन्य सभी शाखयें जिसमें सलारपुर, नानपारा, मिहींपुरवा, रिसिया, पयागपुर, फखरपुर, हरदी, कैसरगंज तथा जरवल रोड में स्थित शाखाओं को शोधपत्र के अध्ययन क्षेत्र में लिया गया है।

अध्ययन का महत्व– जिला सहकारी केन्द्रीय बैंकों को, सहकारी साख के ढ़ांचे में एक महत्वपूर्ण स्थान प्राप्त है, क्योंकि वे शिखर सहकारी बैंक और प्राथमिक कृषि साख समितियों के बीच एक महत्वपूर्ण सम्पर्क कड़ी के रूप में कार्य करती हैं। सम्पूर्ण भारत वर्ष की भांति उत्तर प्रदेश की आर्थिक प्रगति भी कृषि के विकास पर आधारित है। वाणिज्य व्यापार एवं उद्योग धन्धों में भारी विकास के बावजूद भी प्रदेश की सकल आय में कृषि क्षेत्र का योगदान 35% से अधिक है। रोजगार अवसर सुलभ कराने की दृष्टि से भी कृषि लगातार सबसे व्यापक क्षेत्र बना हुआ है। प्रदेश के लगभग 60% रोजगार

कृषि क्षेत्र में उपलब्ध हैं। प्रदेश के किसानों को कृषि उत्पादन हेतु आवश्यक संसाधन जैसे– उर्वरक, बीज, कृषि रक्षा रसायन, कृषि यन्त्र, उपकरण आदि हेतु अल्पकालीन ऋण उपलब्ध कराने में तथा कृषि पर आधारित उद्योग सेवा एवं व्यवसाय आदि प्रयोजनों के लिये मध्यकालीन ऋण उपलब्ध कराने में सहकारी बैंकों की भूमिका अग्रणी है। सहकारी बैंकों द्वारा किसानों को उनकी उपज के वैज्ञानिक भण्डारण तथा विपणन आदि की सुविधा उपलब्ध कराने के साथ–साथ दैनिक उपयोग की आवश्यक उपभोक्ता वस्तुओं की आपूर्ति हेतु वित्त पोषण की व्यवस्था की जाती है। जिला सहकारी केन्द्रीय बैंक अल्पकालिक ऋण संरचना में महत्वपूर्ण भूमिका निभाते हैं।

शोध अध्ययन के उद्देश्य–

1. उत्तर प्रदेश के बहराइच जनपद में स्थित जिला सहकारी केन्द्रीय बैंक की कृषि ऋण संबंधी भूमिका का अध्ययन करना।
2. बहराइच जनपद के जिला सहकारी केन्द्रीय बैंकों के ऋण लेने वाले सदस्यों के लाभ–हानि का अध्ययन करना।
3. सर्वेक्षित हितग्राहियों द्वारा ऋण लेने के बाद आय में परिवर्तन का अध्ययन करना।

शोध पद्धति– यह शोध अध्ययन बहराइच जनपद में जिला सहकारी केन्द्रीय बैंक की भूमिका तथा प्रदर्शन की स्थिति पर केन्द्रित है। इस अध्ययन के लिये आवश्यक साक्षात्कार अनुसूची का प्रयोग करके हितग्राही कृषकों का साक्षात्कार करके प्राथमिक आंकड़ों का प्रयोग किया गया है। आवश्यकता पड़ने पर जिला सहकारी केन्द्रीय बैंक बहराइच की मुख्य शाखा कार्यालय से संबंधित जानकारी ली गयी है।

शोध परिकल्पना–

1. बैंकों से ऋण प्राप्त करने के बाद कृषकों की वार्षिक आय में वृद्धि का पता लगाना।
2. किसानों को प्राप्त होने वाले ऋण की पर्याप्तता का पता लगाना।

संबंधित साहित्य की समीक्षा–

डॉ0 हरजिन्दर पाल सिंह सलूजा एवं भुनेश्वर प्रसाद के शोध पत्र 2018 ''कृषि ऋण वितरण में जिला सहकारी बैंक राजनांद गाँव की भूमिका का अध्ययन'' करने पर जिला सहकारी केन्द्रीय बैंक द्वारा कृषकों को यथासमय एवं आसानी से फसल ऋण प्रदान किया जा रहा है, परन्तु बैंक से अल्पकालीन ऋण लेने में कृषक सदस्य अपनी रुचि नहीं दिखा रहे हैं। जिला सहकारी केन्द्रीय बैंक का उद्देश्य कृषि तथा कृषि सहायक कार्यों हेतु कृषकों को वित्त पोषित करना है। बैंक की सदस्य संख्या में प्रतिवर्ष वृद्धि हो रही है और बैंक, अपनी कार्यशील पूँजी के लगभग 35 प्रतिशत भाग का उपयोग केवल ऋण वितरण में करती है।

गाँधी आर. के ''सहकारी बैंकों के बारे में भविष्य एवं नवाचार'' 2015 भारतीय रिजर्व बैंक बुलेटिन में प्रकाशित शोधपत्र में उल्लिखित है कि सहकारी बैंक, अपनी संरचना, ग्राहक तथा ऋण संबंधी सेवा

प्रदान करने के संबंध में महत्वपूर्ण स्थान रखते हैं। हाल के विश्वस्तरीय वित्तीय संकट के दौरान इन बैंकों ने जो समुत्थान–शक्ति तथा स्थिरता दिखाई है उस दृष्टि से उनके महत्व को विकसित तथा उभरते बाजारों की अर्थव्यवस्थाओं की वित्तीय प्रणाली में रेखांकित किया है। आंतरिक कमजोरियों जैसे न्यून–पूँजी, कमजोर प्रबंधन तथा राज्यों की हस्तक्षेपपूर्ण नीतियों के बावजूद भारत में सहकारी बैंकों ने अपने शताब्दी पुराने अस्तित्व से अनेक चुनौतियों का सामना किया है।

सराठें, रेखा एवं डॉ0 भानू साहू – 'सहकारी बैंक का ऋण क्षेत्र में योगदान और लाभ' रायसेन जिले के क्षेत्र में किये गये अध्ययन में जिला सहकारी बैंकों की भमिका का महत्वपूर्ण योगदान, कृषि के विकास में खेती–बाड़ी और किसानों के जीवन में खासकर ग्रामीण क्षेत्रों में है। यहाँ तक कि सहकारी बैंकों का सहयोग न केवल वित्तीय समर्थन के रूप में होता है, बल्कि वे सामाजिक, आर्थिक और प्रोद्योगिक विकास में भी मदद करती हैं।

प्रस्तुतीकरण एवं विश्लेषण– जनपद बहराइच की ''बहराइच डिस्ट्रिक्ट कोआपरेटिव बैंक'' की प्रधान शाखा तथा जिले की 9 अन्य शाखाओं (सलारपुर, नानपारा, मिहींपुरवा, रिसिया, हरदी, फखरपुर, कैसरगंज, पयागपुर तथा जरवल रोड) से ऋण लेने वाले किसानों की आय एवं अन्य संबंधित जानकारियों के लिए साक्षात्कार अनुसूची तैयार की गयी। अनुसूची में प्रस्तुत प्रविष्टियाँ, 300 फसल ऋण प्राप्त करने वाले किसानों से व्यक्तिगत रूप से ली गयीं। प्रस्तुत शोध पत्र शीर्षक के आधार पर फसल ऋण प्राप्त करने वाले किसानों की आर्थिक स्थिति का पता लगाने के लिए साक्षात्कार अनुसूची के आंकड़ों को निम्न तालिका में संग्रहित किया गया है–

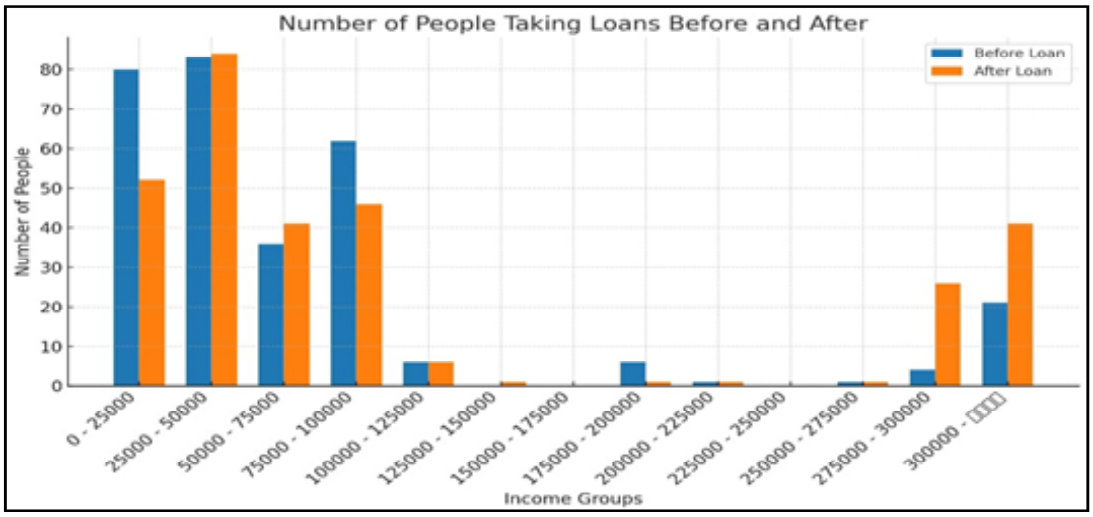
A. तालिका प्रस्तुतीकरण– ऋण प्राप्त सदस्यों की संख्या – वर्ष 2019 से 2023 तक

क्र0सं0	वर्षिक आय (₹) में	ऋण लेने से पहले के आय वाले सदस्यों की संख्या	ऋण लेने के बाद के आय वाले सदस्यों की संख्या
1.	0 - 25000	80	52
2.	25000 - 50000	83	84
3.	50000 - 75000	36	41
4.	75000 - 100000	32	40
5.	100000 - 125000	06	06
6.	125000 - 150000	14	14
7.	150000 - 175000	02	01
8.	175000 - 200000	16	13
9.	200000 - 225000	01	00
10.	225000 -250000	05	12
11.	250000 - 275000	01	00
12.	275000 - 300000	10	11
13.	300000 – Above	14	26
कुल हितग्राही		**300**	**300**

स्रोतः व्यक्तिगत प्रश्नावली वर्ष 2019 से 2023 तक

प्रस्तुत तालिका में किसानों की वार्षिक आय (₹) को 25000 से कम लेते हुए 300000 से अधिक 13 भागों में विभाजित किया गया है। प्रत्येक भाग में 25000 रुपये का अन्तर है। यह विभाजन ऋण लेने से पहले की आय वाले एवं ऋण लेने के बाद की आय वाले किसान सदस्यों की संख्या के आधार पर होने से हितग्राहियों की आर्थिक स्थिति के अच्छे मूल्यांकन को प्रस्तुत करता है। जिसमें विभिन्न आय वाले 300 हितग्राहियों की संख्या में बहुत ही उतार चढ़ाव हुआ है।

B. रेखाचित्रीय प्रस्तुतीकरण



स्रोतः उपरोक्त तालिका के आंकड़ों का स्पष्ट चित्रण

अध्ययन करने पर 0 से 25000 तक आय वाले सदस्यों की संख्या, ऋण लेने से पहले 80 थी, जो कि ऋण लेने के बाद 52 हो गयी। जिससे यह पता चलता है कि ऋण लेने के बाद कृषकों की आय में वृद्धि हुई जिसके कारण इस आय वर्ग के किसान दूसरी आय वर्गों में स्थानान्तरित हो गए। इसी प्रकार से 25000 से 50000 तक आय वर्ग में ऋण लेने से पहले 83 कृषक थे तथा ऋण लेने के बाद 84 हो गए तथा 50000 से 75000 तक आय वर्ग में 36 से बढ़ कर 41 की संख्या हो गयी तथा 75000 से 100000 आय वर्ग में 32 से बढ़ कर 40 कृषक हो गए। इसी प्रकार से 100000 से 125000 आय वर्ग में पहले 06 तथा बाद में भी 06 की ही संख्या रही, इसी प्रकार से 125000 से 150000 की आय वर्ग में पहले 14 तथा बाद में भी 14 की ही संख्या रही। जो यह दर्शाता है कि इस आय वर्गों के किसानों की आय में वृद्धि नहीं हुई है अर्थात मध्यम आय वर्ग वाले हितग्राही किसानों द्वारा बैंकों से कृषि ऋण लेना लाभकारी नहीं रहा। ऋण का आन्तरिक नकारात्मक प्रभाव यह रहा कि कृषि ऋण लेने वाले किसानों को ब्याज देना ही पड़ा, जो कि उनकी आय में कमी का द्योतक है। आय वर्ग 150000 से 175000 में ऋण लेने से पहले की संख्या 02 से घट कर 01 हो गयी तथा 175000 से 200000 आय वर्ग में 16 से घट कर 13 हो गयी इसी प्रकार से 200000 से 225000 आय वर्ग में 01 की संख्या घटकर 00 हो गयी जिससे पता चलता है कि इन सभी वर्गों के कृषकों की आय में वृद्धि होने के कारण यह

किसान निम्न आय वर्ग से उच्च आय वर्गों की ओर स्थानान्तरित हो गये हैं। तालिका में क्रम सं0 10, 12 और 13 की आय वर्ग में पहले किसानों की संख्या कम थी, जो कि ऋण लेने के बाद किसानों की अधिक संख्या सबसे अधिक आय वर्ग में हो गयी है। अर्थात उच्च आय वर्ग के कृषकों की आय में सकारात्मक वृद्धि को दर्शाता है। उक्त तालिका एवं ग्राफ का विश्लेषण करने पर यह पाया गया कि ऋण लेने के बाद अधिकांश कृषकों की आमदनी में वृद्धि हुई है।

निष्कर्ष– प्रत्येक देश की अर्थव्यवस्था के विकास का केन्द्र बिन्दु उसका कृषि क्षेत्र है। कृषि क्षेत्र के कुशल एवं विकसित होने पर ही आर्थिक विकास की गति में तेजी आती है। परन्तु कृषि क्षेत्र का विकास कृषकों को साख की सुविधाएं प्रदान किये बिना नहीं किया जा सकता है। किसानों को रासायनिक खाद, अच्छे बीजों, सिंचाई की सुविधाओं, आधुनिक उपकरणों तथा विपणन की सुविधाओं की जरूरत होती है, यह कृषि उद्योग की प्रारंभिक आवश्यकताएं हैं। इनको प्राप्त करने के लिए किसानों के पास पर्याप्त पूँजी नहीं होती। समय पर पर्याप्त मात्रा में साख सुविधाएं उपलब्ध होने पर यह उक्त साधनों को एकत्र करने तथा कृषि उत्पादन बढ़ाने में सफल हो सकते हैं। इसी प्रकार से निष्कर्ष रूप में इस शोध में यह कहा जा सकता है कि अधिकांश किसानों को ऋण (पूँजी) उपलब्ध होने से कृषकों की आय में निश्चित रूप से वृद्धि हुयी है। जिन किसानों ने ऋणों का प्रयोग कृषि कार्यों में किया है उनकी आय में पहले की अपेक्षा अधिक वृद्धि हुयी है।

साक्षात्कार अनुसूची प्रविष्टियों के आधार पर कुछ मध्यवर्गीय किसानों ने ऋणों का प्रयोग कृषि में न करके दूसरे अन्य कार्यों जैसे बीमारी, शादी इत्यादि में किया है, अतः उनकी वार्षिक आमदनी में वृद्धि नहीं देखने को मिली है।

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सर्कुलर इकॉनॉमी में पारंपरिक ज्ञान प्रणालियों (IKS) की भूमिका

डॉ0 सुशीला गढ़वाल [1] एवं ज्योति राजवातल [2]

सारांश (Abstract)

सर्कुलर इकॉनॉमी एक ऐसी आर्थिक व्यवस्था है जो "उत्पादन-उपयोग-पुनःउपयोग" के सिद्धांत पर कार्य करती है, जिसका उद्देश्य संसाधनों का अधिकतम उपयोग करना, अपशिष्ट को न्यूनतम करना और प्रकृति के साथ संतुलन बनाए रखना है। यह दृष्टिकोण आधुनिक जरूर है, परंतु इसके मूल तत्व पारंपरिक ज्ञान प्रणालियों (Indigenous Knowledge Systems - IKS) में लंबे समय से निहित रहे हैं। IKS में प्रकृति के साथ सामंजस्यपूर्ण जीवन, संसाधनों का विवेकपूर्ण उपयोग, और पुनःप्रयोग की परंपराएं सदियों से प्रचलित रही हैं। ग्रामीण और जनजातीय समुदायों द्वारा अपनाई गई कृषि पद्धतियाँ, जल संरक्षण प्रणालियाँ, पारंपरिक निर्माण तकनीकें और घरेलू उपयोग की वस्तुओं का पुनर्चक्रण सर्कुलर इकॉनॉमी के सिद्धांतों के उत्कृष्ट उदाहरण हैं। यह शोध इस बात की पड़ताल करता है कि किस प्रकार IKS सर्कुलर इकॉनॉमी को स्थानीय और वैश्विक स्तर पर अधिक प्रभावशाली बना सकती है। साथ ही यह भी विश्लेषण किया गया है कि टिकाऊ विकास (Sustainable Development) के लक्ष्य प्राप्त करने हेतु पारंपरिक ज्ञान को आधुनिक तकनीकी दृष्टिकोण के साथ कैसे जोड़ा जा सकता है। IKS न केवल पर्यावरण संरक्षण में सहायक है, बल्कि यह सामाजिक और सांस्कृतिक स्थायित्व को भी सुनिश्चित करती है।

***खोज शब्द (Keywords)** - सर्कुलर इकॉनॉमी, पारंपरिक ज्ञान प्रणाली, जनजातीय समुदाय, कृषि पद्धतियाँ, पर्यावरण संरक्षण।*

प्रस्तावना

पारंपरिक समाजों की जीवनशैली में संसाधनों के संरक्षण, पुन: उपयोग और पुनर्चक्रण की जो प्रवृत्ति रही है, वह आज के दौर में 'सर्कुलर इकॉनॉमी' (Circular Economy) के सिद्धांतों से मेल खाती है। जहाँ आधुनिक औद्योगिक प्रणाली 'उपयोग और फेंकने' (Use and Dispose) की मानसिकता पर आधारित है, वहीं पारंपरिक ज्ञान प्रणालियाँ (Indigenous Knowledge Systems – IKS) संसाधनों के पुनः चक्रण और नैतिक उपयोग की समर्थक हैं।

हाल के वर्षों में चक्रीय अर्थव्यवस्था (Circular Economy- CE) की अवधारणा ने विभिन्न पर्यावरणीय एवं आर्थिक चुनौतियों को संबोधित कर सकने के एक विकल्प के रूप में व्यापक रूप से ध्यान आकर्षित किया है। विभिन्न संसाधनों की परिमित प्रकृति और अपशिष्ट एवं प्रदूषण के नकारात्मक प्रभावों की बढ़ती मान्यता के साथ, चक्रीय अर्थव्यवस्था आर्थिक विकास के पारंपरिक रैखिक मॉडल के लिये एक अधिक संवहनीय एवं प्रत्यास्थी विकल्प की पेशकश करती है।

- विश्व भर में सरकारें, कारोबार क्षेत्र और अन्य संगठन चक्रीय अभ्यासों को अपनाने और अधिकाधिक चक्रीय अर्थव्यवस्था की ओर आगे बढ़ने के रास्तों की तलाश कर रहे हैं। COP27 बैठक ने भी उत्तरदायित्वपूर्ण उपभोग

1. विभागाध्यक्ष – हिन्दी विभाग, वेदान्ता स्नातकोत्तर महिला महाविद्यालय, रींगस, सीकर, राजस्थान।
2. वेदान्ता स्नातकोत्तर महिला महाविद्यालय, रींगस, सीकर, राजस्थान। ईमेल – sushilagarhwal0001@gmail.com

एवं सतत् संसाधन प्रबंधन सुनिश्चित करने के माध्यम से भारत के लिये कार्बन उत्सर्जन को कम कर सकने में चक्रीय अर्थव्यवस्था की प्रासंगिकता को प्रमुखता से सामने रखा है।

इस शोध पत्र का उद्देश्य यह स्पष्ट करना है कि IKS, जो परंपरागत समाजों में विकसित हुईं, कैसे सर्कुलर इकॉनॉमी के आधुनिक सिद्धांतों को आधार और दिशा प्रदान कर सकती हैं।

सर्कुलर इकॉनॉमी: एक परिचय

चक्रीय अर्थव्यवस्था ऐसी अर्थव्यवस्था है जहाँ उत्पादों को स्थायित्व, पुन: उपयोग और पुनर्चक्रण के लिये अभिकल्पित किया जाता है और इस प्रकार लगभग हर चीज़ का पुन: उपयोग, पुनर्निर्माण एवं कच्चे माल के रूप में पुनर्चक्रण किया जाता है अथवा ऊर्जा स्रोत के रूप में इसका उपयोग किया जाता है।

इसमें 6 R की अवधारणा शामिल है—Reduce (सामग्री के उपयोग को कम करना), Reuse (पुनःउपयोग), Recycle (पुनर्चक्रण), Refurbishment (पुनर्निर्माण), Recover (पुनरुद्धार) और Repairing (मरम्मत)।

गहरी ऐतिहासिक और दार्शनिक जड़ों के साथ, चक्रीयता की धारणा को किसी एक व्यक्ति या स्थान के लिए जिम्मेदार नहीं ठहराया जा सकता है। समय के साथ, शिक्षाविदों, विचारकों और व्यवसायों के एक छोटे समूह द्वारा चक्रीय अर्थव्यवस्था को विकसित और परिष्कृत किया गया है, जिसमें शामिल हैं:

- वाल्टर स्टेल और जेनेवीव रेडे: ऊर्जा के स्थान पर मानव शक्ति के उपयोग की संभावना
- जैनीन बेनियस बायोमिमिक्री: प्रकृति से प्रेरित नवाचार
- पॉल हॉकेन, एमोरी लोविंस और एल. हंटर लोविंस: प्राकृतिक पूंजीवाद: अगली औद्योगिक क्रांति का निर्माण
- केनेथ बोल्डिंग: आने वाले अंतरिक्ष यान पृथ्वी का अर्थशास्त्र
- गुंटर पॉली: नीली अर्थव्यवस्था

जर्मन रसायनज्ञ माइकल ब्रौनगार्ट और अमेरिकी वास्तुकार विलियम मैकडोनो (जिन्हें अक्सर "परिपत्र अर्थव्यवस्था के जनक" के रूप में जाना जाता है) ने "क्रैडल टू क्रैडल: रीमेकिंग द वे वी मेक थिंग्स" नामक 2002 की पुस्तक के माध्यम से इस अवधारणा को अकादमिक सिद्धांत से मुख्यधारा के आंदोलन में धकेल दिया, जिसमें उत्पादों को पारिस्थितिकी तंत्र को नुकसान पहुंचाने के बजाय उन्हें पुनर्जीवित करने के लिए डिज़ाइन किया गया था।

चक्रीय अर्थव्यवस्था एक ऐसी प्रणाली है जहाँ सामग्री कभी भी बेकार नहीं जाती और प्रकृति का पुनर्जनन होता है। चक्रीय अर्थव्यवस्था में, उत्पादों और सामग्रियों को रखरखाव, पुनः उपयोग, नवीनीकरण, पुनः निर्माण, पुनर्चक्रण और खाद बनाने जैसी प्रक्रियाओं के माध्यम से प्रचलन में रखा जाता है। चक्रीय अर्थव्यवस्था जलवायु परिवर्तन और अन्य वैश्विक चुनौतियों, जैसे जैव विविधता हानि, अपशिष्ट और प्रदूषण से निपटती है, आर्थिक गतिविधि को सीमित संसाधनों की खपत से अलग करके।

एक वृत्ताकार अर्थव्यवस्था सामग्री और उत्पादों को यथासंभव लंबे समय तक प्रचलन में रखती है। सेव अवर सीज 2.0 एक्ट एक ऐसी अर्थव्यवस्था को संदर्भित करता है जो सिस्टम-केंद्रित दृष्टिकोण का उपयोग करती है और इसमें औद्योगिक प्रक्रियाएँ और आर्थिक गतिविधियाँ शामिल होती हैं जो डिज़ाइन द्वारा पुनर्योजी या पुनर्योजी होती हैं, ऐसी प्रक्रियाओं और गतिविधियों में उपयोग किए जाने वाले संसाधनों को यथासंभव लंबे समय तक अपना उच्चतम मूल्य बनाए रखने में सक्षम बनाती हैं, और सामग्री, उत्पादों और प्रणालियों (व्यावसायिक मॉडल सहित) के बेहतर डिज़ाइन के माध्यम से कचरे को

खत्म करने का लक्ष्य रखती हैं। यह उस मॉडल में बदलाव है जिसमें संसाधनों का खनन किया जाता है, उत्पादों में बनाया जाता है, और फिर वे कचरा बन जाते हैं। एक वृत्ताकार अर्थव्यवस्था सामग्री के उपयोग को कम करती है, सामग्री और उत्पादों को कम संसाधन गहन बनाने के लिए फिर से डिज़ाइन करती है, और नई सामग्री और उत्पादों के निर्माण के लिए संसाधन के रूप में "अपशिष्ट" को पुनः प्राप्त करती है।

सर्कुलरिटी को संधारणीय सामग्री प्रबंधन (SMM) दृष्टिकोण के अंतर्गत अपनाया गया है जिसे EPA और अन्य संघीय एजेंसियों ने 2009 से अपनाया है। SMM छत्र के अंतर्गत एक सर्कुलर अर्थव्यवस्था दृष्टिकोण जलवायु प्रभावों सहित सामग्रियों के नकारात्मक जीवनचक्र प्रभावों को कम करने, हानिकारक सामग्रियों के उपयोग को कम करने और आर्थिक विकास और समाज की जरूरतों को पूरा करने से सामग्री के उपयोग को अलग करने पर हमारे जोर में निरंतरता को प्रदर्शित करता है। EPA के पास राष्ट्र को हमारे समुदायों पर सामग्रियों के पूर्ण प्रभावों को संबोधित करने में मदद करने के लिए एक व्यापक दृष्टिकोण है और इसने हमारे अपशिष्ट प्रबंधन प्रणाली के लिए एक परिवर्तनकारी दृष्टिकोण निर्धारित किया है - जो समावेशी, अधिक न्यायसंगत है, और जलवायु संकट की तात्कालिकता को दर्शाता है - रणनीतियों की एक श्रृंखला जारी करके जो सभी के लिए एक सर्कुलर अर्थव्यवस्था बनाने के लिए समर्पित होगी।

चक्रीय अर्थव्यवस्था की परिभाषाएँ हैं

उदाहरण के लिए, चीन में , CE को शीर्ष-डाउन राष्ट्रीय राजनीतिक उद्देश्य के रूप में बढ़ावा दिया जाता है, जबकि अन्य क्षेत्रों जैसे कि यूरोपीय संघ, जापान और यूएसए में, यह नीचे से ऊपर की ओर पर्यावरण और अपशिष्ट प्रबंधन नीतियों को डिजाइन करने का एक उपकरण है। CE को बढ़ावा देने का अंतिम लक्ष्य आर्थिक विकास से पर्यावरणीय दबाव को कम करना है। एक व्यापक परिभाषा हो सकती है: "चक्रीय अर्थव्यवस्था एक आर्थिक प्रणाली है जो पर्यावरण निष्कर्षण से लेकर औद्योगिक परिवर्तन और अंतिम उपभोक्ताओं तक, सभी शामिल पारिस्थितिकी प्रणालियों पर लागू होने वाले सामग्री जीवनचक्र में शून्य अपशिष्ट और प्रदूषण को लक्षित करती है। अपने जीवनकाल के अंत में, सामग्री या तो एक औद्योगिक प्रक्रिया में वापस आ जाती है या, एक उपचारित कार्बनिक अवशेष के मामले में, एक प्राकृतिक पुनर्जनन चक्र के रूप में सुरक्षित रूप से पर्यावरण में वापस आ जाती है। यह मैक्रो, मेसो और माइक्रो स्तरों पर मूल्य बनाकर और स्थिरता नेस्टेड अवधारणा का पूरा फायदा उठाकर संचालित होता है। उपयोग किए गए ऊर्जा स्रोत स्वच्छ और नवीकरणीय हैं। संसाधन उपयोग और खपत कुशल हैं। सरकारी एजेंसियां और जिम्मेदार उपभोक्ता सही प्रणाली के दीर्घकालिक संचालन को सुनिश्चित करने में सक्रिय भूमिका निभाते हैं।"

एलेन मैकआर्थर फाउंडेशन के सीईओ एंड्रयू मोरलेट ने 2020 में लीडिंग डिसरप्शन पैनल के दौरान समझाया : "केवल रीसाइकिलिंग हमें नहीं बचाएगी।" सर्कुलर इकोनॉमी एक "बड़ा विचार" है - एक महत्वपूर्ण पुनर्गठन जो हमें यह सोचने पर मजबूर करता है कि हमने पहले स्टीम इंजन के उदय के बाद से चीजों को कैसे किया है।

विश्व आर्थिक मंच के अनुसार, एक चक्राकार अर्थव्यवस्था “एक औद्योगिक प्रणाली है जो इरादे और डिजाइन द्वारा पुनर्स्थापनात्मक या पुनर्योजी है।”

सर्कुलर अर्थव्यवस्था को बेहतर ढंग से समझने के लिए हम इसकी तुलना हमारी वर्तमान औद्योगिक अर्थव्यवस्था से कर सकते हैं, जिसमें रैखिक प्रक्रियाओं का बोलबाला है। कन्वेयर बेल्ट के एक विशाल नेटवर्क की कल्पना करें जहाँ माल का उत्पादन, उपयोग और अंततः त्याग किया जाता है। इस एकतरफा प्रवाह की एक स्पष्ट शुरुआत और अंत है।

चक्रीय अर्थव्यवस्था के मुख्य सिद्धांत

चक्रीय अर्थव्यवस्था के तीन मुख्य सिद्धांत हैं। वह अनिवार्य:

1. अपशिष्ट और प्रदूषण को ध्यान में रखकर डिजाइन करें – उत्पादों और प्रणालियों को शुरू से ही स्थिरता को ध्यान में रखते हुए डिजाइन किया जाना चाहिए, जिससे अनावश्यक अपशिष्ट का निर्माण समाप्त हो सके।
2. उत्पादों और सामग्रियों को उपयोग में रखें – उत्पादों को पुनः उपयोग, मरम्मत, नवीनीकरण और पुनर्चक्रण के माध्यम से विस्तारित जीवन चक्र की आवश्यकता होती है, ताकि सामग्री यथासंभव लंबे समय तक कार्यात्मक बनी रहे।
3. प्राकृतिक प्रणालियों को पुनर्जीवित करें - संसाधनों के उपयोग से पर्यावरण को बढ़ावा मिलना चाहिए, न कि नुकसान पहुंचना चाहिए, तथा जैव विविधता और पारिस्थितिकी तंत्र सेवाओं को समर्थन मिलना चाहिए।

इन सिद्धांतों को पूरा करना पूरी तरह से डिजाइन पर निर्भर करता है। इसलिए, सर्कुलर अर्थव्यवस्था एक डिजाइन समस्या है। अभी, हम जिन चीज़ों का इस्तेमाल करते हैं, उनमें से ज़्यादातर एक रेखीय प्रणाली के लिए बनाई गई हैं: हम धरती से सामग्री लेते हैं, चीज़ें बनाते हैं और फिर उन्हें फेंक देते हैं। इससे जैव विविधता नष्ट होती है, पर्यावरण प्रदूषित होता है और जलवायु परिवर्तन होता है। स्पष्ट रूप से, यह जारी नहीं रह सकता।

चक्रीय सिद्धांतों का उपयोग करके अपनी अर्थव्यवस्था को पुनः डिजाइन करके, हम सकारात्मक परिवर्तन ला सकते हैं। रैखिक अर्थव्यवस्थायह एक विकल्प है जो हमने चुना है। चलो इसके बजाय एक गोलाकार चुनें।

हम उत्पादों, सामग्रियों और बुनियादी ढांचे को डिज़ाइन करके कचरे और प्रदूषण को खत्म कर सकते हैं ताकि उनके इस्तेमाल के बाद उन्हें अर्थव्यवस्था में वापस लाया जा सके। जबकि रीसाइक्लिंग एक अच्छी शुरुआत है, अगर हम चीजों को शुरू से ही एक सर्कुलर सिस्टम के लिए डिज़ाइन करते हैं, तो हम कचरे को बनने से रोक सकते हैं।

हम उत्पादों और सामग्रियों को बनाए रखकर, उनका पुनः उपयोग करके और उनका नवीनीकरण करके उनका प्रसार कर सकते हैं। यदि उनका अब और उपयोग नहीं किया जा सकता है, तो हम उन्हें अलग कर सकते हैं, पुनः निर्माण कर सकते हैंउन्हें, और, अंतिम उपाय के रूप में, पुनर्चक्रित करेंजैविक उत्पादों को प्रकृति में वापस लौटाने के लिए खाद बनाया जा सकता है। इस तरह, हम सीमित सामग्री रखते हैंअर्थव्यवस्था में और पर्यावरण से बाहर, तथा सुरक्षित रूप से जैवनिम्नीकरणीय सामग्रियों को पृथ्वी पर वापस लाना।

हम प्राकृतिक वातावरण को बेहतर बनाने और जैव विविधता के निर्माण पर ध्यान केंद्रित करके प्रकृति को पुनर्जीवित कर सकते हैं , बजाय इसके कि हम क्या ले सकते हैं इस पर ध्यान केंद्रित करें। हम ऐसी कृषि पद्धतियों का उपयोग कर सकते हैं जो मिट्टी को बहाल करती हैं और जैव विविधता को बढ़ाती हैं, और हम पृथ्वी पर जैविक सामग्री वापस कर सकते हैं। पुनर्योजी मॉडल को अपनाकर, हम प्राकृतिक प्रणालियों के काम करने के तरीके की नकल कर सकते हैं। प्रकृति में कोई अपशिष्ट नहीं है। अपशिष्ट एक मानवीय आविष्कार है।

चक्राकार अर्थव्यवस्था का दृष्टिकोण क्या है?

फ्रांसीसी रसायनज्ञ एंटोनी-लॉरेंट डी लावोइसियर के शब्दों में: "कुछ भी नहीं खोया है, सब कुछ बदल गया है।" सर्कुलर आंदोलन का यह अपनाया गया आदर्श वाक्य बताता है कि कैसे क्लोज्ड लूप दृष्टिकोण का उद्देश्य विकास को समाप्त करना नहीं है। इसके बजाय, सर्कुलर अर्थव्यवस्था का उद्देश्य उद्योग को प्रकृति के साथ सामंजस्य में वापस लाना है, ताकि हम समृद्ध होते रहें।

संक्षेप में, एक परिपत्र अर्थव्यवस्था पृथ्वी की स्वाभाविक रूप से परिपत्र प्रणालियों की नकल करती है। उत्पादों और प्रक्रियाओं को इस तरह से डिज़ाइन किया गया है कि सभी अपशिष्ट किसी और चीज़ के लिए चारा बन जाते हैं। "क्रैडल टू क्रैडल" में, मैकडोनो और ब्राउनगार्ट अक्सर चेरी के पेड़ के रूपक का उपयोग करते हैं:

"पेड़ अपने पर्यावरण को नुकसान पहुँचाए बिना प्रचुर मात्रा में फूल और फल देता है। एक बार जब वे जमीन पर गिर जाते हैं, तो उनकी सामग्री विघटित हो जाती है और पोषक तत्वों में टूट जाती है जो सूक्ष्मजीवों, कीड़ों, पौधों, जानवरों और मिट्टी को पोषण देते हैं। हालाँकि पेड़ वास्तव में अपने 'उत्पाद' को पारिस्थितिकी तंत्र में अपनी सफलता के लिए ज़रूरत से ज़्यादा बनाता है, लेकिन यह प्रचुरता (लाखों वर्षों की सफलता और विफलता या, व्यावसायिक शब्दों में, अनुसंधान और विकास) के माध्यम से समृद्ध और विविध उद्देश्यों की पूर्ति के लिए विकसित हुई है।"

चक्रीय अर्थव्यवस्था क्यों महत्वपूर्ण है?

सर्कुलर अर्थव्यवस्था का उद्देश्य कुछ भी फेंकना नहीं है, जिससे अधिक वस्तुओं का उपयोग करने की आवश्यकता कम हो जाती है। यह हमारी रैखिक "ले लो, बनाओ-निपटान करो" अर्थव्यवस्था के लिए एक स्पष्ट विकल्प प्रदान करता है - एक ऐसी अर्थव्यवस्था जो इस धारणा पर चलती है कि उत्पादों में बदलने के लिए हमेशा कुंवारी सामग्री होगी, और कचरे को डालने के लिए हमेशा कोई न कोई जगह होगी।

जैसे-जैसे दुनिया की आबादी बढ़ती जा रही है, यह बात स्पष्ट होती जा रही है कि रैखिक अर्थव्यवस्था की धारणाएँ सच नहीं हैं या कम से कम टिकाऊ नहीं हैं। पहली औद्योगिक क्रांति के बाद से विनिर्माण पर हावी रहा मॉडल अब दबाव में आ गया है।

उस समय पृथ्वी पर 1 बिलियन से भी कम लोग रहते थे। आज, दुनिया की आबादी 8 बिलियन तक पहुँच चुकी है - उपभोक्ताओं के बढ़ते वैश्विक मध्यम वर्ग के साथ। हम न केवल उन्हीं संसाधनों का उपयोग कर रहे हैं, बल्कि उन्हें खतरनाक दर पर फेंक भी रहे हैं। संयुक्त राष्ट्र की एक रिपोर्ट के अनुसार, 1970 के बाद से वैश्विक संसाधन निष्कर्षण तीन गुना से भी अधिक हो गया है। 90% से अधिक कच्चे माल का पुनः उपयोग नहीं किया जाता है।

चक्रीय अर्थव्यवस्था के क्या लाभ हैं?

अधिक चक्रीय अर्थव्यवस्था में परिवर्तन - जो हमारे सीमित संसाधनों के मूल्य को पहचानती है और उसका सम्मान करती है - यह सुनिश्चित करने में मदद करेगी कि हमारे पास भविष्य के विकास और समृद्धि के लिए पर्याप्त भोजन, पानी, आश्रय, हीटिंग और अन्य आवश्यकताएं हैं। एलेन मैकआर्थर फाउंडेशन, मैकिन्से एंड कंपनी और अन्य उद्योग विशेषज्ञों द्वारा किए गए कई अध्ययनों में विस्तार से बताया गया है कि कैसे एक चक्रीय मॉडल में अर्थव्यवस्था और पर्यावरण के साथ-साथ व्यवसायों और उपभोक्ताओं के लिए कई लाभ प्रदान करने की शक्ति है।

उपभोक्ताओं - प्रयोज्य आय में वृद्धि कुशल, उच्च गुणवत्ता वाले उत्पादों और टिकाऊ सेवाओं की एक नई श्रृंखला प्रदान करें स्वामित्व लागत और परेशानियों को कम करें स्वास्थ्य में सुधार करें।

अर्थव्यवस्था - आर्थिक विकास को बढ़ावा देना (जीडीपी द्वारा परिभाषित) सामग्री की लागत कम करना नई नौकरियाँ सृजित करना नवाचार को प्रेरित करना।

व्यवसाय - लागत कम करना और लाभ के नए स्रोत उत्पन्न करना सामग्री की कीमतों और आपूर्ति में अस्थिरता को स्थिर करना संग्रहण, रसद, पुनः विपणन, नवीनीकरण और पुनः विनिर्माण में नई सेवाओं की मांग उत्पन्न करना दीर्घकालिक ग्राहक संपर्क और वफादारी को बनाए रखना।

पर्यावरण - कार्बन डाइऑक्साइड उत्सर्जन को आधा करना तथा ग्रीनहाउस गैस उत्सर्जन को कम करना प्राथमिक सामग्री की खपत को 32% तक कम करना संपत्ति के रूप में भूमि और मिट्टी का मूल्य बढ़ाना।

चक्रीय अर्थव्यवस्था के उदाहरण

उद्योग ने अभी-अभी सर्कुलर अर्थव्यवस्था द्वारा प्रदान किए जाने वाले पर्यावरणीय, आर्थिक और सामाजिक अवसरों का लाभ उठाना शुरू किया है — और इसे लाभप्रद रूप से कर रहा है। एथिस्फेयर की सबसे नैतिक कंपनियों के टॉप प्रोजेक्ट विश्लेषण से पता चलता है कि सकारात्मक सामाजिक प्रभाव में निवेश करने वाले व्यवसायों को अपने प्रतिस्पर्धियों द्वारा छूटे गए लाभ के अवसरों का लाभ उठाकर अधिक लाभ होता है। हालाँकि सर्कुलर अर्थव्यवस्था को व्यापक रूप से अपनाना रातों-रात नहीं होगा, लेकिन कुछ उद्योग सर्कुलर पहलों और गतिविधियों को अपनाकर महत्वपूर्ण प्रगति कर रहे हैं। यहाँ कुछ उदाहरण दिए गए हैं:

ऑटोमोटिव

ऑटोमोटिव उद्योग में अवसरों की भरमार है, जहाँ शुरुआती डिज़ाइन और रीमैन्युफैक्चरिंग से लेकर वैकल्पिक स्वामित्व मॉडल और कार-शेयरिंग तक सभी स्तरों पर एक बड़ा बदलाव हो रहा है। हालाँकि लीज़िंग ऑटो उद्योग के लिए कोई नई अवधारणा नहीं है, लेकिन इसे अधिक व्यापक रूप से अपनाया जा रहा है। उदाहरण के लिए, फ्रांसीसी निर्माता और सर्कुलर अग्रणी रेनॉल्ट इलेक्ट्रिक कारों के लिए बैटरी किराए पर लेता है ताकि उन्हें वापस लिया जा सके और फिर से इंजीनियर किया जा सके। टायर बनाने वाली कंपनी मिशेलिन अपने बेड़े से इस्तेमाल किए गए टायरों को इकट्ठा करती है ताकि उन्हें फिर से बेचने के लिए फिर से तैयार किया जा सके। इन रीट्रेड किए गए टायरों को नए टायरों के आधे कच्चे माल की आवश्यकता होती है और ये 90% प्रदर्शन देते हैं।

इलेक्ट्रानिक्स

इलेक्ट्रॉनिक्स उद्योग के भीतर, सर्कुलर अर्थव्यवस्था संभावना के एक प्रकाश स्तंभ के रूप में चमकती है। Apple जैसी कंपनियों ने ट्रेड-इन और नवीनीकरण पहलों का बीड़ा उठाया है जो पुराने उपकरणों में नई जान फूंकते हैं। जब ग्राहक अपने इस्तेमाल किए गए स्मार्टफोन या लैपटॉप वापस करते हैं, तो Apple कार्यात्मक इकाइयों का मूल्यांकन, नवीनीकरण और पुनर्विक्रय करता है। जिन उपकरणों का नवीनीकरण नहीं किया जा सकता है, उनके लिए एल्युमिनियम, तांबा और दुर्लभ पृथ्वी धातुओं जैसी कीमती सामग्रियों को पुनर्प्राप्त किया जाता है और उत्पादन धारा में फिर से पेश किया जाता है।

ये कार्यक्रम वर्जिन सामग्रियों की मांग को काफी हद तक कम करते हैं, जिससे खनन और विनिर्माण से जुड़े पर्यावरणीय प्रभाव कम होते हैं। इसके अतिरिक्त, कुछ उपकरणों में मॉड्यूलर डिज़ाइन उन्हें मरम्मत या अपग्रेड करना आसान बनाते हैं, जिससे उपयोगकर्ताओं को अपने उत्पाद के जीवनकाल को बढ़ाने पर अधिक स्वामित्व मिलता है। अन्य कंपनियाँ भी आधुनिक तकनीक के लिए अधिक टिकाऊ दृष्टिकोण के लिए उद्योग मानक बनाते हुए, इसी का अनुसरण कर रही हैं।

उपभोक्ता वस्तुओं

प्लास्टिक की सुविधा के कारण ग्रह को भारी कीमत चुकानी पड़ी है। हालांकि, अल्बाट्रॉस डिज़ाइन्स सहित उपभोक्ता सामान निर्माता पारंपरिक प्लास्टिक उत्पादों के लिए अपशिष्ट-मुक्त विकल्प बना रहे हैं जिनका हम हर दिन उपयोग करते हैं। अल्बाट्रॉस स्टेनलेस स्टील रेज़र प्रदान करता है जो कई वर्षों तक उपयोग में रहते हैं, साथ ही एक ब्लेड टेक बैक प्रोग्राम भी है जो इस्तेमाल किए गए ब्लेड को नए उत्पादों जैसे कि पुन: प्रयोज्य सिल्वरवेयर सेट में बदल देता है। एक और बंद-लूप घरेलू उत्पाद वेलेस से आता है। कचरे को एक संसाधन के रूप में मानते हुए, कंपनी ने खाद्य अपशिष्ट से वैज्ञानिक रूप से प्राप्त सामान्य कार्बनिक रासायनिक यौगिकों से बना एक सर्व-उद्देश्यीय क्लीनर बनाया है।

पहनावा

जबकि फास्ट फ़ैशन ने अत्यधिक उपभोग की उच्च दरों को बढ़ावा दिया है, फ़ॉर डेज़ जैसे संधारणीय ब्रांड भी कचरे पर नियंत्रण कर रहे हैं। उनके 100% रिसाइकिल करने योग्य कपड़े और स्वैप प्रोग्राम ग्राहकों को पहने हुए आइटम वापस करने और नई खरीदारी के लिए क्रेडिट अर्जित करने की सुविधा देता है। स्वैप किए गए प्रत्येक आइटम का उपयोग भविष्य के उत्पाद बनाने के लिए किया जाता है। 2020 में, 40,000 खरीदार फ़ॉर डेज़ में शामिल हुए, जिन्होंने लैंडफ़िल से 55,000 पाउंड कचरे को हटाया। सर्कुलर डिज़ाइन पहल एलीन फ़िशर जैसे अधिक पारंपरिक डिज़ाइनरों के लिए भी काम कर रही है। पाँच साल से भी कम समय में, उनके रिन्यू टेक-बैक प्रोग्राम ने कम कीमत पर पुनर्विक्रय के लिए 900,000 से अधिक कपड़ों का पुनः निर्माण किया, जिसने ब्रांड को युवा दर्शकों के लिए खोल दिया।

खाना

खाद्य उद्योग में , डिजिटल तकनीक अधिशेष को पुनर्निर्देशित करके खाद्य अपशिष्ट को कम करने में मदद कर रही है। OLIO जैसे साझाकरण प्लेटफ़ॉर्म पड़ोसियों को अपने क्षेत्र के अन्य घरों को सूचित करने देते हैं जब उनके पास अतिरिक्त भोजन या सामग्री होती है। OLIO रेस्तरां, कैटरर्स, होटल और अन्य व्यवसायों के लिए अधिशेष भोजन पिकअप भी प्रदान करता है ताकि इसे समुदाय में सुरक्षित रूप से पुनर्वितरित किया जा सके। इस परिपत्र आपूर्ति श्रृंखला को बनाकर, दुनिया भर में भोजन के 6.5 मिलियन से अधिक हिस्से साझा किए गए हैं। लैंडफिल में भेजे जाने वाले कचरे की मात्रा को कम करने के अलावा, यह नवाचार कृषि संसाधनों के उपयोग को अनुकूलित करता है और सामाजिक स्वास्थ्य और कल्याण में सुधार करता है।

फर्नीचर

फर्नीचर उद्योग में जहाँ अधिकांश उत्पाद टिकाऊ होते हैं, कंपनियाँ सामग्रियों के जीवनकाल को बढ़ाने पर ध्यान केंद्रित करती हैं। उदाहरण के लिए, IKEA वकालत, सहयोग और व्यावसायिक साझेदारी के माध्यम से 100% सर्कुलर उत्पाद बनाने की राह पर है । 2019 में, दुनिया के सबसे बड़े फर्नीचर रिटेलर ने 47 मिलियन उत्पादों को दूसरा जीवन दिया। ठोस बबूल की लकड़ी और देवदार जैसी प्राकृतिक सामग्रियों से बने फर्नीचर को रिसाइकिल किया जा सकता है या ऊर्जा वसूली के लिए इस्तेमाल किया जा सकता है, जबकि लिबास उत्पादों को मरम्मत और नवीनीकरण के लिए आसानी से अलग किया जा सकता है।

वित्त

सर्कुलर इकॉनमी को आगे बढ़ाने में वित्तीय क्षेत्र की भूमिका निर्विवाद है और यह प्रणालीगत स्तर पर गति पकड़ रही है। विश्व बैंक ने तत्काल कार्रवाई पर जोर देते हुए दुनिया भर में ठोस अपशिष्ट प्रबंधन कार्यक्रमों के लिए 4.7 बिलियन डॉलर से अधिक की प्रतिबद्धता जताई है। यूके के ग्रीन फाइनेंस इंस्टीट्यूट ने भी पर्यावरण, सामाजिक और शासन से जुड़े फंडों में बहुत अधिक प्रवाह की रिपोर्ट की है। जनवरी और अक्टूबर 2020 की अवधि के बीच, निवेश संघ (IA) ने " जिम्मेदार निवेश कोष " में 10.72 बिलियन डॉलर रखे। यह फंड में रखे गए सभी शुद्ध धन का 47.5% था और 2019 की इसी अवधि की तुलना में चार गुना अधिक था।

भारतीय ज्ञान – परंपरा: एक परिचय

भारतीय ज्ञान' काफी हद तक परंपरा पर आधारित है। मानव सभ्यता के उदय से ही परंपराएं पीढ़ी दर पीढ़ी निरंतर रूप से आगे बढ़ती रहीं, जो भारतीय सभ्यता को दुनिया की सबसे पुरानी जीवित सभ्यता बनाती है। साथ ही, परंपराओं में सुधार भी होते रहे हैं और 'भारतीय ज्ञान' विकसित होता रहा है। भारतीय ज्ञान प्रणाली का पुनरुद्धार और अनुकूलन राष्ट्र की समृद्ध बौद्धिक विरासत को संरक्षित करने के साथ-साथ इसे आधुनिक समाज की मांगों के साथ संरेखित करने के लिए महत्वपूर्ण है। राष्ट्रीय शिक्षा नीति (एनईपी) 2020 ने एक व्यापक रूपरेखा प्रदान की है जो शैक्षिक पाठ्यक्रम में (आईकेएस) को शामिल करने को प्रोत्साहित करती है, जो सीखने के लिए एक समग्र और समावेशी दृष्टिकोण को बढ़ावा देने में इसके महत्व पर प्रकाश डालती है।

अक्टूबर 2020 में, भारत सरकार के शिक्षा मंत्रालय ने भारतीय ज्ञान प्रणाली (आईकेएस) नामक एक प्रभाग की स्थापना की, जिसका मुख्यालय नई दिल्ली में अखिल भारतीय तकनीकी शिक्षा परिषद (एआईसीटीई) में है। इसके बाद विभिन्न संस्थानों में आईकेएस के कई केंद्र स्थापित किए गए। यह समझना उचित है कि आईकेएस का गठन क्या है? आजकल, पूरी दुनिया एक वैश्विक गांव वन गई है क्टूबर 2020 में, भारत सरकार के शिक्षा मंत्रालय ने भारतीय ज्ञान प्रणाली (आईकेएस) नामक एक प्रभाग की स्थापना की, जिसका मुख्यालय नई दिल्ली में अखिल भारतीय तकनीकी शिक्षा परिषद (एआईसीटीई) में है। इसके बाद विभिन्न संस्थानों में आईकेएस के कई केंद्र स्थापित किए गए। यह समझना उचित है कि आईकेएस का गठन क्या है? आजकल, पूरी दुनिया एक वैश्विक गांव वन गई है र भारतीय सभी प्रकार के ज्ञान में योगदान दे रहे हैं। हालांकि, 'भारतीय ज्ञान' शब्द के साथ कुछ अनोखा है, जो प्राचीन काल से भारतीय उपमहाद्वीप में ज्ञान के निरंतर प्रवाह को दर्शाता है। अनूठी विशेषता यह है कि 'भारतीय ज्ञान' का उद्देश्य व्यक्ति के = समग्र विकास के लिए उसे भौतिकवादी और आध्यात्मिक जीवन के लिए योग्य बनाना है।

सर्कुलर इकोनॉमी में IKS की भूमिका

वर्तमान समय में पर्यावरणीय संकट, प्राकृतिक संसाधनों की कमी, और बढ़ते कचरे की समस्याओं के समाधान के लिए सर्कुलर इकोनॉमी (Circular Economy) को एक सशक्त विकल्प के रूप में देखा जा रहा है। यह एक ऐसा आर्थिक मॉडल है जो पुन: उपयोग (reuse), मरम्मत (repair), पुनर्चक्रण (recycle) और सतत उपभोग (sustainable consumption) को प्रोत्साहित करता है। इस संदर्भ में पारंपरिक ज्ञान प्रणालियाँ (Indigenous Knowledge Systems - IKS) एक महत्वपूर्ण भूमिका निभा सकती हैं क्योंकि ये ज्ञान प्रणालियाँ सैकड़ों वर्षों से स्थानीय समुदायों द्वारा विकसित की गई हैं, जो प्रकृति के साथ सामंजस्यपूर्ण जीवन की प्रेरणा देती हैं।

पारंपरिक ज्ञान प्रणालियाँ स्थानीय समुदायों की संस्कृति, परंपरा और पर्यावरण के अनुभवों पर आधारित होती हैं। ये पीढ़ी दर पीढ़ी मौखिक परंपराओं, प्रथाओं और जीवनशैली के माध्यम से हस्तांतरित होती हैं। भारत जैसे देश में आदिवासी समुदायों और ग्रामीण समाजों के पास जल प्रबंधन, कृषि, औषधीय पौधों, वस्त्र निर्माण, भवन निर्माण आदि से संबंधित गहन पारंपरिक ज्ञान है जो सस्टेनेबिलिटी का अद्वितीय उदाहरण प्रस्तुत करता है।

सर्कुलर इकोनॉमी में IKS की भूमिका

1. कृषि और खाद्य प्रणाली में योगदान

पारंपरिक कृषि प्रणालियाँ जैसे कि ज़ैरो बजट प्राकृतिक खेती, मिश्रित फसल प्रणाली और जैविक खाद का उपयोग, सर्कुलर इकोनॉमी के सिद्धांतों को अपनाती हैं। इनमें कृषि अपशिष्ट का पुन: उपयोग खाद के रूप में किया जाता है, जिससे भूमि की उर्वरता बनी रहती है और बाहरी रासायनिक इनपुट की आवश्यकता नहीं होती।

2. जल संरक्षण

राजस्थान की 'जोहर प्रणाली', महाराष्ट्र की 'पाट प्रणाली' और उत्तराखंड के 'नौला' जैसे पारंपरिक जल संचयन उपाय जल के कुशल उपयोग के उदाहरण हैं। ये तकनीकें जल संरक्षण के साथ-साथ पुनः उपयोग और सामुदायिक सहभागिता को बढ़ावा देती हैं।

3. पुनर्चक्रण और पुन: उपयोग की परंपरा

ग्रामीण और आदिवासी समुदायों में पुराने कपड़े, बर्तन, लकड़ी और अन्य वस्तुओं का पुन: उपयोग और पुनर्चक्रण आम बात है। पुराने कपड़ों से रजाई, तकिए, पोछे आदि बनाना या फटे बर्तन का उपयोग पौधों के गमले के रूप में करना सर्कुलर इकोनॉमी की भावना का प्रतिबिंब है।

4. प्राकृतिक निर्माण तकनीक

IKS के अंतर्गत कच्ची ईंटों, बाँस, मिट्टी और पुआल जैसे स्थानीय और पुनः प्रयोज्य संसाधनों का उपयोग कर टिकाऊ और पर्यावरण–अनुकूल मकान बनाए जाते हैं। यह ऊर्जा खपत को कम करने के साथ-साथ कम कार्बन उत्सर्जन को भी सुनिश्चित करता है।

5. हस्तशिल्प और स्थानीय उत्पाद

पारंपरिक हस्तशिल्प उद्योग जैसे खादी, टेराकोटा, बांस शिल्प आदि प्राकृतिक संसाधनों से निर्मित होते हैं और स्थानीय संसाधनों को स्थानीय लोगों द्वारा प्रसंस्कृत किया जाता है। यह न केवल कचरे को कम करता है बल्कि आजीविका के साधनों को भी मजबूत करता है।

IKS और आधुनिक तकनीक का समन्वय

सर्कुलर इकोनॉमी को और प्रभावशाली बनाने के लिए पारंपरिक ज्ञान को आधुनिक तकनीक से जोड़ा जाना आवश्यक है। उदाहरणस्वरूप:

- GIS और रिमोट सेंसिंग का प्रयोग पारंपरिक जल स्रोतों के पुनरुद्धार में किया जा सकता है।

- पारंपरिक कृषि ज्ञान को AI और IoT के माध्यम से डेटा-ड्रिवन बनाकर उत्पादकता और सस्टेनेबिलिटी दोनों को बढ़ाया जा सकता है।
- ई-कॉमर्स के माध्यम से पारंपरिक उत्पादों को वैश्विक बाजार मिल सकता है जिससे स्थानीय समुदायों की आय बढ़ेगी।

निष्कर्ष

सर्कुलर इकोनॉमी के सिद्धांत और पारंपरिक ज्ञान प्रणालियाँ दोनों ही पर्यावरणीय स्थिरता और सामाजिक समावेशन की दिशा में कार्य करते हैं। IKS न केवल सतत जीवनशैली का मार्ग दिखाती हैं, बल्कि आर्थिक रूप से भी सशक्त समाज के निर्माण में सहायक हैं। यदि आधुनिक तकनीक और नीति समर्थन के साथ IKS को सशक्त किया जाए, तो यह सर्कुलर इकोनॉमी को जनआंदोलन में परिवर्तित कर सकती है।

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भारतीय ज्ञान प्रणाली (IKS) के अर्थशास्त्र

डॉ0 विवेक कुमार [1]

सारांश (Abstract)

भारतीय ज्ञान प्रणाली (Indian Knowledge System-IKS) में अर्थशास्त्र का अध्ययन एक विशिष्ट दृष्टिकोण प्रदान करता है, जो पश्चिमी अर्थशास्त्र से अलग है। भारतीय संदर्भ में अर्थशास्त्र केवल धन-सम्पदा के उत्पादन और वितरण तक सीमित नहीं है, बल्कि यह नैतिकता, सामाजिक सद्भाव और आध्यात्मिक विकास से भी सम्बन्धित है। प्राचीन भारतीय ग्रंथों जैसे वेद, उपनिषद्, अर्थशास्त्र (कौटिल्य), शुक्रनीति, महाभारत आदि में अर्थ के सिद्धांतों को विस्तृत रूप में समझाया गया है। प्रस्तुत शोधपत्र का उद्देश्य भारतीय ज्ञान प्रणाली में अर्थशास्त्र के सिद्धांतों, वर्तमान में प्रासंगिकता और वर्तमान समय में उसके महत्व को संक्षिप्त रूप से उद्धृत करना है।

खोजशब्द (Keywords):- *भारतीय ज्ञान प्रणाली, अर्थशास्त्र, IKS*

परिचय (Introduction)

कौटिल्य 'अर्थ' शब्द की व्युत्पत्ति करते हुए लिखते हैं कि **अर्थ्यते सर्वैः** इति अर्थात् जिसे प्राप्त करने की सभी को प्रबल इच्छा हो (त्रिपाठी, 1970)। इसी अर्थ के विषय में चाणक्य अपनी चाणक्यनीति में लिखते हैं कि **सुखस्य मूलं धर्मः।**[1] **धर्मस्य मूलम् अर्थः।**[2] अर्थात् सुख (खुशी) का मूल/स्रोत धर्म है और धर्म का भी मूल अर्थ है। अपनी नीति में कौटिल्य कहते हैं कि अर्थ के माध्यम से व्यक्ति अपनी आवश्यकताओं की पूर्ति करता है। यह व्यक्ति की आजीविका/व्यवसाय/वृत्ति का मुख्य साधन है।[3] उनके अनुसार अर्थ पर ही धर्म और काम आश्रित हैं।[4]

अर्थ की परिभाषा देते हुए श्री वात्स्यायन मुनि कामसूत्र के प्रथम अधिकरण के दूसरे अध्याय में लिखते हैं कि **विद्या-भूमि-हिरण्य-पशु-धान्य-भाण्डोपस्कर-मित्रादीनां अर्जनं संगमस्यविवर्धनं अर्थः।**[5] अर्थात् शिक्षा, भूमि, सोना आदि, पशु, अनाज, बर्तन, लकड़ी, घर में उपयोग होने वाली धातु की चीजें, मित्रों द्वारा अर्जित सम्पत्ति और व्यक्ति की बढती हुई आय - ये सभी अर्थ कहलाते हैं।

यह अर्थ ही है जो सभी सांसारिक समृद्धि का कारण माना जा सकता है (सिप्रा, 2000)। जो सभी प्रकार के उद्देश्यों की सिद्धि की ओर ले जाती है।

1. चाणक्यनीति – 1.1
2. चाणक्यनीति – 1.2
3. वृत्तिमूलोऽर्थलाभः। (चाणक्यनीति – 1.89)
4. अर्थमूलौ धर्मकामौ। (चाणक्यनीति – 1.90)
5. कामसूत्रम् - 1.2.9

1. Assistant Professor, Department of Sanskrit, Shaheed Mahendra Singh Bhakuni Rajkiya Mahavidyalaya Dugnakuri (Banlekh), Janpad Bageshwar – Uttarakhand. E-mail: vishnorapatyam@gmail.com

उद्देश्य (Objectives)

भारतीय ज्ञान प्रणाली में अर्थशास्त्र से सम्बन्धित प्रमुख सिद्धान्तों को प्रस्तुत करना।

भारतीय अर्थशास्त्र की मूल अवधारणाएँ

1. पुरुषार्थ चतुष्टय: अर्थ का दार्शनिक आधार

भारतीय दर्शन में मानव जीवन के चार उद्देश्यों (पुरुषार्थ) की व्याख्या की गई है, जिनमें मानव जीवन के धर्म, अर्थ, काम और मोक्ष हैं। इनमें अर्थ (धन और भौतिक समृद्धि) का एक महत्वपूर्ण स्थान है लेकिन यह धर्म (नैतिकता) के अधीन होना चाहिए।

धर्मार्थावुच्यते श्रेयः कामार्थौ धर्म एव च।

अर्थ एवेह वा श्रेयस्त्रिवर्ग इति तु स्थितिः ॥[6]

अर्थः- किसी के मत में धर्म और अर्थ और किसी के मत में अर्थ और काम और किसी के मत में केवल धर्म कल्याणकारी है। कोई केवल अर्थ को श्रेयस्कर मानते हैं। अब अपने मत को कहते हैं कि धर्म, अर्थ और काम तीनों एकत्र हैं और इन्हीं तीनों से सब कुछ प्राप्त होता है।

2. अर्थशास्त्र और राजनीति: कौटिल्य का योगदान

कौटिल्य (चाणक्य) का अर्थशास्त्र प्राचीन भारत का एक प्रमुख ग्रंथ है, जिसमें राज्य की अर्थव्यवस्था, करप्रणाली, व्यापार और कृषि आदि का विस्तृत विवरण मिलता है। कौटिल्य ने सप्तांग सिद्धांत (राज्य के सात अंग)[7] में अर्थ को केंद्रीय (मुख्य) स्थान दिया। उन्होंने कहा कि कोष यानी कि धन की तुलना मुख से की है। राज्य के कोष को हमेशा ही भरा हुआ होना चाहिए, क्योंकि वह धन का उपयोग राज्य के महत्वपूर्ण कार्यों और जनता के भरण-पोषण के लिए ही किया जाता है। कौटिल्य ने कृषि, पशुपालन और व्यापार को लोगों की वृत्ति का प्रमुख साधन माना है और भूमि को राजस्व का प्रमुख स्रोत स्वीकार किया है। कौटिल्य के अनुसार अर्थ का संग्रह धर्मपूर्वक और न्यायसंगत विधि से करना चाहिए। जिसमें अन्न का छठवां हिस्सा और व्यापारिक वस्तुओं का दसवां हिस्सा ही कर (Tax) के रूप में ग्रहण करना चाहिए। उनका मानना था कि

प्रजासुखे सुखं राज्ञः, प्रजानां च हिते हितम्।

नात्मप्रियं हितं राज्ञः, प्रजानां तु प्रियं हितम् ॥[8]

प्रजा के सुख में ही राजा का सुख है, प्रजा के हित में ही उसका हित है। राजा का अपना सुख महत्वपूर्ण नहीं, प्रजा का सुख ही उसका हित है।

ऐतिहासिक उदाहरण:

- **मौर्य साम्राज्य (322–185 ई.पू.)** ने कौटिल्य के सिद्धांतों को लागू कर केंद्रीकृत अर्थव्यवस्था बनाई, जिसमें सड़कें, सिंचाई और व्यापार मार्ग विकसित किए गए।

पश्चिमी अर्थशास्त्र (एडम स्मिथ, "द वेल्थ ऑफ नेशंस") व्यक्तिगत लाभ को प्रेरक शक्ति मानता है, जबकि IKS **सामूहिक कल्याण** पर बल देता है।

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6. मनुस्मृति – 2.224।
7. स्वाम्यमात्यजनपददुर्गकोशदण्डमित्राणि प्रकृतयः।
8. कौटिलीय अर्थशास्त्रम् – 1.19.34

2. भारतीय अर्थव्यवस्था के पारंपरिक स्रोत

2.1 कृषि: अर्थव्यवस्था की रीढ

प्राचीन भारत में **कृषि** प्राथमिक आर्थिक गतिविधि थी। **ऋग्वेद** (4.57.5) में कृषि को "देवताओं का वरदान" कहा गया है एवं कहा कि हे शुन एवं सीर! तुम हमारी स्तुति को स्वीकार करो। तुमने आकाश में जिस जल का निर्माण किया था, उसी से तुम इस धरती को सींचो।[9]

शास्त्रीय संदर्भ:

- महर्षि पराशर ने अन्न के महत्व को प्रतिपादित करते हुए कहा है कि किसी के हाथ, कान या गले में भले ही स्वर्ण आभूषण पडे हों किन्तु अन्न के अभाव में उन्हें भी उपवास ही करना पडेगा। स्वर्ण रत्नादि किसी की भूख शान्त करने में सक्षम नहीं हैं। भूख तो केवल अन्न से ही शान्त हो सकती है।[10]
- आधुनिक सतत कृषि (Sustainable Agriculture) के सिद्धांत IKS से मेल खाते हैं, जैसे जैविक खेती और जल संरक्षण।

3. आधुनिक युग में IKS की प्रासंगिकता

3.1 गांधीजी का ट्रस्टीशिप सिद्धांत

महात्मा गांधी ने IKS से प्रेरणा लेकर ट्रस्टीशिप (न्यासिता) का सिद्धांत दिया, जिसमें धनवानों को समाज का संरक्षक माना गया। इसमें पश्चिमी कॉर्पोरेट सामाजिक उत्तरदायित्व (CSR) व भारतीय दान परंपरा (दक्षिणा, भूदान) में पर्याप्त भिन्नता पाई जाती है।

3.2 सतत विकास (Sustainable Development)

अथर्ववेद के 12वें मण्डल के प्रथम सूक्त के तीसरे मन्त्र में प्रकृति और अर्थव्यवस्था का सामंजस्य है, जैसे:

यस्यां समुद्र उत सिन्धुरापो यस्यामन्नं कृष्टयः संबभूवुः।
यस्यामिदं जिन्वति प्राणदेजत्सा नो भूमिः पूर्वपेये दधातु॥

अर्थात् यह पृथ्वी समुद्रों, नदियों, झरनों और सरोवरों के जल से परिपूर्ण है। इस धरती पर कृषि की जाती है, जिस करने से अन्न उत्पन्न होता है। उस अन्न से संसार के मनुष्य, पशु आदि अपनी क्षुधा शान्त करते हैं। इस प्रकार की पृथ्वी हमें उस प्रदेश में प्रतिष्ठित करे, जहां पर रसदार फल उत्पन्न होते हैं।

निष्कर्ष

भारतीय पारंपरिक ज्ञान प्रणाली में अर्थशास्त्र **नैतिकता, सामाजिक न्याय और पारिस्थितिक संतुलन** पर आधारित है। आज के वैश्विक आर्थिक संकटों (जलवायु परिवर्तन, आय असमानता) का समाधान IKS के सिद्धांतों में निहित है।

यद्भूतहितं अत्यंतं तत्सत्।

अर्थात् जो सभी प्राणियों के हित में है, वही सत्य है।

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9. शुनासीराविमां वाचं जुषेथां यद्दिवि चक्रथुः पयः। तेनेमामुप सिञ्चतम्॥ (ऋग्वेद – 4.57.5)
10. कण्ठे कर्णे च हस्ते च सुवर्णं विद्यते यदि। उपवासस्तथापि स्यादन्नाभावेन देहिनाम्। (कृषि-पाराशरः – 5)

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छत्तीसगढ़ में खरीफ फसल उत्पादन एवं ग्रामीण विकास

श्रीमती रजनी सारथी [1]

प्रस्तावना

कृषि भारतीय अर्थव्यवस्था की नींव है। भारत की 67% जनसंख्या कृषि पर निर्भर है। कुल जीडीपी में कृषि का योगदान 18.3 प्रतिशत है। छत्तीसगढ़ की 80% जनसंख्या कृषि कार्यो में लगी हुई है। यहाँ मुख्यतः खरीफ फसलों का उत्पादन किया जाता है। खरीफ फसलों के अन्तर्गत धान, मक्का, सोयाबीन, मूँगदाल, ज्वार, बाजरा इत्यादि फसलें आती है।

खरीफ फसलों की विशेषताएं

1. मानसून में बोई जाती है।
2. प्रमुख खरीफ फसलें– छत्तीसगढ़ राज्य को **''धान का कटोरा''** कहते है। धान मुख्य खरीफ फसल है। छत्तीसगढ़ के अन्तर्गत खरीफ फसलों का क्षेत्रफल तथा उत्पादन मे वृद्धि को देखा जा सकता है।

सरगुजा जिले में मुख्यतः खरीफ फसलों का उत्पादन किया जाता है। खरीफ फसलों में मुख्य फसल धान है। सरगुजा जिले में धान का क्षेत्रफल **115066 हेक्टेयर** तथा उत्पादन **359176 मेट्रिक टन** है, जो सर्वाधिक है।

छत्तीसगढ़ में खरीफ फसलों का स्वर्णिम इतिहास इसलिए हैं, क्योंकि छत्तीसगढ़ के कई जिलें सिंचित क्षेत्र के अन्तर्गत आते है। खरीफ के अन्तर्गत कपास का उत्पादन, बिलासपुर, रायपुर, बेमेतरा, आदि जिलों में किया जाता है, जो कि एक व्यावसायिक फसल है। जिससे कृषकों के जीवन स्तर में सुधार संभव हुआ है। ज्वार, बाजरा जैसे खाद्यान्नों का महत्व भी निरन्तर बढ़ता जा रहा है, जिसमें अनेकों पौष्टिक तत्व पाए जाते है।

मक्का भी वर्तमान में बहुत लोकप्रिय होता जा रहा है, जिससे तरह–तरह के खाद्य–प्रदार्थ बनाए जाते है।

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1. शोध छात्रा/सहायक प्राध्यापक (अर्थशास्त्र), राजीव गाँधी शासकीय स्नातकोत्तर महाविद्यालय अम्बिकापुर, जिला सरगुजा (छ.ग.)।

उद्देश्य

प्रस्तुत शोध अध्ययन का उद्देश्य छत्तीसगढ़ राज्य के सरगुजा जिले के खरीफ फसलों का उत्पादन तथा कृषि अर्थव्यवस्था पर इसके प्रभाव का अध्ययन करना है।

परिकल्पना

प्रस्तुत शोध कार्य की परिकल्पना निम्नानुसार है–

1. सरगुजा मे मुख्य रूप से खरीफ फसलों में धान का उत्पादन किया जाता है।
2. खरीफ फसलों के उत्पादन से ग्रामीण अर्थव्यवस्था प्रगति कर रही है।
3. खरीफ फसलों के उत्पादन मे निरंतर वृद्धि हो रही है।

शोध प्रविधि

शोध अध्ययन हेतु प्राथमिक एवं द्वितीयक ऑकड़ों का प्रयोग किया गया है। सरगुजा के पाँच विकास खण्ड़ का अध्ययन किया गया है। वहॉ के कृषकों से संबद्धित ऑकड़े साक्षत्कार के माध्यम से प्राप्त किये गया है।

शोध क्षेत्र

अध्ययन हेतु छत्तीसगढ़ राज्य के सरगुजा जिले का चयन किया गया है। सरगुजा के पाँच विकास खण्ड़ के प्रत्येक से 20 ग्राम से कुल 100 कृषकों से खरीफ फसल संबंधित ऑकड़े प्राप्त किये गये है।

परिकल्पना परिक्षण

परिकल्पना का परीक्षण हेतु टी–टेस्ट से किया गया। परिकल्पना सत्य पायी गयी हैं

निष्कर्ष

प्रस्तुत अध्ययन से ज्ञात होता है कि सरगुजा जिले में खरीफ फसलों की उत्पादन में निरंतर वृद्धि हुई है। जिससे सरगुजा जिले की अर्थव्यवस्था का विकास हुआ है।

सुझाव

सरगुजा जिले मे वर्तमान में खरीफ फसलों के उत्पादन मे वृद्धि हुई है, किन्तु इसमें और वृद्धि की संभावनाऐं विद्यमान है। इसे हेतु निम्नलिखित सुझाव दिये जा सकते है–

1. कृषि उत्पादन की उन्नत तकनीक के प्रयोग पर बल देना चाहिए।
2. प्रति हेक्टेयर उत्पादन में वृद्धि का प्रयास करना चाहिए।

3. फसल बीमा को और प्रचलित करना चाहिए, ताकि कृषि संबंधित नुकसान को कम से कम किया जा सकें।
4. सिंचाई के पर्याप्त साधनों का विकास करना चाहिए ताकि विविधीकरण द्वारा फसल के उत्पादन में वृद्धि हो सकें।

स्त्रोत

1. जिला सांख्यिकी पुस्तिका जिला–सरगुजा वर्ष–2020
2. बीज निगम सरगुजा। में कृषि संबंधित उपलब्ध आँकड़े।
3. आई सी.एस.आर. हैदराबाद। में कृषि संबंधित उपलब्ध आँकड़े।
4. मौसम विभाग रायपुर, भोपाल में कृषि संबंधित उपलब्ध आँकड़े।
5. जिला सांख्यिकीय कार्यालय कलेक्ट्रेट, सरगुजा में कृषि संबंधित उपलब्ध आँकड़े।
6. रंजना शर्मा, ''छत्तीसगढ़ की प्रमुख फसलों की उत्पादन प्रवृत्ति का सामयिक एवं स्थानिक विश्लेषण (1960–61 से 1994–95)'', पं. रविशंकर शुक्ल विश्वविद्यालय रायपुर, 2002

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