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“Aazadi ka Amritkaal : Global Welfare Through Indian Knowledge System” Volume -2

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Km. Mayawati Government Girls P.G. College,
Badalpur - Gautam Buddha Nagar (U.P.)
College Recognized under section 2 (f) & 12 (b) of UGC

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FOREWORD

The phase referred to as Azaadi ka Amrit Kaal represents a meaningful milestone in India's post-independence journey. Beyond commemorating the progress achieved since independence, it also offers an opportunity to reflect on the nation's evolving role in contributing to a more balanced and humane global order. As India moves forward during this significant period, it becomes increasingly valuable to revisit the intellectual and cultural foundations that have shaped its civilization for centuries. The volume "Azaadi ka Amrit Kaal: Global Welfare Through Indian Knowledge System" is therefore both timely and relevant, especially when the global community is searching for sustainable and ethically grounded models of development.

India possesses a rich legacy of knowledge traditions that have been cultivated and transmitted across generations. These traditions emphasize harmony between individuals, society, nature, and the larger cosmos. At the heart of this worldview lies the idea that humanity is interconnected and that collective well-being should guide social and intellectual pursuits. Such perspectives promote empathy, cooperation, and responsibility toward both society and the environment. In the contemporary world, where societies face complex challenges such as environmental degradation, social inequality, and ethical dilemmas in governance, these enduring principles provide valuable insights.

This edited volume brings together a range of scholarly contributions that explore different dimensions of the Indian Knowledge System. The chapters examine diverse areas including philosophy, education, governance, health traditions, scientific thought, and ecological understanding. By engaging with these themes from academic and interdisciplinary perspectives, the contributors demonstrate how traditional knowledge can remain relevant in addressing contemporary questions. The dialogue created between historical wisdom and modern inquiry enriches our understanding of how knowledge evolves and adapts across time.

One of the strengths of this compilation lies in its effort to position Indian knowledge traditions within the broader framework of global welfare. Rather than viewing them solely as elements of cultural

heritage, the authors highlight their potential to inform new ways of thinking about development, policy, and social responsibility. The interdisciplinary approach adopted in the book encourages readers to appreciate the interconnected nature of knowledge and its capacity to guide meaningful change in society.

The idea of Amrit Kaal calls for renewed confidence in India's intellectual and cultural resources while simultaneously embracing a sense of global responsibility. As India continues to participate actively in international discussions on development, sustainability, and cooperation, the values embedded in its knowledge traditions—such as balance, inclusivity, and collective welfare—become increasingly significant. Scholarly works like this volume play an important role in fostering awareness and critical engagement with these traditions.

It is hoped that this book will inspire researchers, students, and thoughtful readers to explore the enduring relevance of the Indian Knowledge System. Through deeper reflection and continued scholarship, the insights contained in these traditions may contribute not only to India's intellectual growth but also to the broader pursuit of human well-being.

May this volume encourage meaningful dialogue and further research on how the wisdom preserved in India's knowledge heritage can help guide humanity toward a more equitable, sustainable, and peaceful future.

Dr. Sanjiv Kumar
Editor-in-Chief

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1.

A In-depth Examination of The Relevance of Indian Culture's Contribution to Environmental Security

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The assumption that environmental conditions can significantly affect human security, stability and conflicts is the foundation of the concept of environment security . The idea of environmental security emphasis how environmental problems, resource scarcity, and conflicts are related. It has developed into a field of study that aims to comprehend how environmental deterioration, whether through excessive resource usage, pollution, or habitat depletion , can pose security problem at the local, national and worldwide levels. According to the concept of environmental security, conflict and instability may be caused by environmental degradation. Resource scarcity may be result from over exploitation of renewable resources by communities or nations, such as farmland ,forests, water and fisheries, beyond levels that are sustainable. Conflicts can arise from increased competition over these limited resources. According to Millennium project “Environmental security involves safeguarding the harmony between human and their environment. It encompasses the restoration of ecosystems affected by military activities and the mitigation of resource shortages, environmental damage, and biological risks that could provoke social and conflict. In this millennium project also identified the most crucial environmental security threats :

1. Human pollution growth and loss of biodiversity
2. Climate change

2

3. Water scarcity and pollution including ground water contamination
4. Food security
5. Environmental refugees
6. Deforestation
7. Industrial contamination of air and offense
8. Soil conservation/erosion
9. Nuclear safety issues
10. Ozone depletion.

Cultural factors and their impact on environmental attitudes- cultural factors play a significant role in shaping people's environmental attitudes and behaviours. These elements include society's general norms, values, practices, and beliefs, which have significant impact on the way people view and respond to environmental problems. Environment-related attitudes can be greatly influenced by cultural perspectives, which are frequently based on religious, philosophical, or historical traditions. For instance, indigenous cultures frequently have ties to the land and wildlife, which influence their environmental beliefs and conservation activities, whereas some western societies have historically viewed nature as a resource to be used for economic gain. The way that people in these cultures interact with their surrounding is significantly impacted by these different points of view.

The significance of indian culture in the context of environmental security- indian culture holds significant relevance in the context of environmental security for several reasons:

- **Respect for nature-** indian culture is deeply rooted in the reverence for nature. In Upanishads, concept like "vasudhaiva kutumbakam" (the world is one family) emphasize the interconnectedness of all living beings. It suggest that harming one part of the ecosystem can have far-reaching consequences for the entire system. For example, if a river is polluted, it doesn't just affect the fish in the river but also the communities that depend on it for drinking water and agriculture.
- **Spiritual connection to nature-** indian culture, deeply rooted in spirituality emphasizes the interconnectedness of all living beings and the environment. For example, Hinduism teaches that the earth is the mother (Bhumi) and reverence for the

natural world is a part of daily rituals like the worship of rivers, trees and animal which promotes environmental preservation.

- **Agricultural practices-** Indian culture has a long history of integrating agricultural practices with the environment. For example, Crop rotation was a common practise in the industry valley civilization and it is still relevant today. It helped preserve soil fertility and decreased the danger of soil depletion by alternating the types of crops grown in a field. Ancient indian farmers used organic fertilizers such as compost, animal manure, and crop residues to enrich the soil. This practise is eco-friendly , as it avoids the use of harmful chemical fertilizers.
- **Traditional ecological knowledge-** indian culture is rich in inherited traditional ecological knowledge. For instance , native groups like the Bishnois in Rajasthan have along history of preserving forests and animals (black deers) . This knowledge invaluable in sustainable resource management.
- **Biodiversity conservation-** Indian culture values diversity, which includes the nation’s abundant biodiversity. An Indian culture, the concept of “unity in diversity” extends to the preservation of various ecosystems, such as the sundarbans mangrove forest, which is essential for both the conservation of species and the mitigation o climate change.
- **Ayurveda and herbal medicine-** Ayurveda, an ancient indian system of medicine, relies on herbal remedies and promotes, the sustainable use of natural resources, encouraging the conservation of medicinal plants.
- **Water Management-** water management has been a critical part of indian culture and history for thousands of years. The Indus valley civilization is a prime example of this ,they developed an advanced system of water management including the construction of wells, canals, and reservoirs to efficiently store and distribute water for agriculture and daily use.

Conclusion

In conclusion, this research article has delved into the intricate relationship between indian culture and environmental security. It has highlighted the profound relevance of indian culture in promoting environmental sustainability and security. India’s cultural

values, spiritual connection to nature agricultural practices, traditional ecological knowledge and biodiversity conservation efforts have all contributed significantly to the global conservation on environmental security. Furthermore, Indian culture's emphasis on respecting nature as an interconnected web of life and its promotion of sustainable practices, such as crop rotation and organic farming, offer valuable lessons for the world in the face of pressing environmental challenges. The preservation of biodiversity, sustainable herbal medicine practices like Ayurveda and historical water management systems exemplify India's holistic approach to environmental security. By recognizing and incorporating these cultural values and practices into contemporary environmental policies and practices, we can take significant steps towards safeguarding the planet, addressing key environmental security threats and fostering harmony between humanity and the environment.

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2. Role of Indian Traditional Knowledge in Environmental Conservation

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Traditional knowledge is also known as indigenous knowledge and local knowledge. It refers to any information, knowledge, or practice of indigenous local communities. Such knowledge is developed from experience and came to us from our ancestors in the form of stories, songs, rituals, beliefs, customs, community laws, etc. for the betterment of communities. An illustration of this is the use of turmeric, whose various uses are given in Ayurveda.

Traditional knowledge has played and still plays a significant role in multiple dimensions, such as medical treatment, food security, and the development of agriculture. Today, there is a growing appreciation for the value of traditional knowledge. This knowledge is not only beneficial for people in their daily lives but is also considered an essential part of cultural identities.

The environment refers to the surroundings or conditions in which an organism, person, or thing exists. It encompasses both the physical and biological factors that make up the natural world and can include elements such as air, water, land, plants, animals, and human-made structures.

In India, people have already valued nature. This is evident in the worship of the sun, wind, trees, plants, etc. by various indigenous communities in India. Certain species of trees have been protected because they are valued for their fruits and flowers. Similarly, conservation of wildlife is also an integral part of our culture. In India, tribal communities developed an intimate relationship with

their surroundings as nature became part of their lives and livelihoods. They consider nature to be God and protect the environment, considering it their responsibility.

Degradation of environment and causes

The degradation of the environment refers to the deterioration of natural ecosystems, resources, and overall environmental quality. Environmental degradation, a pressing global concern, is caused by various human activities and natural phenomena. Many international organizations recognize environmental degradation as one of the major threats facing the planet. Degradation of the environment occurs when a renewable resource such as soil, grassland, forest, or wildlife is extracted at a rate faster than the resource can be replaced and thus becomes depleted.

The causes of environmental deterioration are multifaceted. Deforestation, driven by agricultural expansion and logging, results in habitat loss and disrupts ecosystems. Air pollution, originating from industrial emissions and fossil fuel combustion, releases harmful pollutants, contributing to climate change and compromising air quality. Industrial and agricultural runoff and inadequate sewage treatment that contaminate freshwater sources are causes of water pollution that pose risks to both ecosystems and human health. Soil erosion, which is induced by unsustainable farming and land-use practices, depletes fertile topsoil and diminishes land productivity. Climate change, primarily caused by greenhouse gas emissions, leads to extreme weather events and rising temperatures, impacting ecosystems worldwide. The loss of biodiversity, attributed to habitat destruction and invasive species, threatens ecosystems and the services they provide.

Increasing human populations put additional pressure on natural resources and ecosystems, exacerbating environmental degradation. Rapid urban growth and poorly planned urban development can lead to habitat loss, increased energy consumption, and pollution, affecting both urban and nearby rural environments. Rapid population growth, together with modern urbanization, industrialization, and economic development, leads to increased solid waste generation, which also degrades the environment.

Conservation of environment

The term environmental conservation refers to anything we do to protect our planet and conserve its natural resources. In simpler words, we can define environmental conservation as the management of natural resources in a planned way to retain diversity and balance in nature. It also includes optimum and judicious use of natural resources in such a way that the present generation's needs are met and, at the same time, enough resources are available for future generations to fulfil their own needs.

It is important to conserve the environment because if we don't, the natural resources that we depend on will eventually be depleted. The conservation of renewable resources like water and forests involves ensuring that they are not consumed faster than they can be replaced. Conservation of renewable resources often involves practices such as selective logging, reforestation, afforestation, and sustainable agriculture. These methods aim to strike a balance between resource utilization and preservation. Conservation of non-renewable resources involves strategies such as energy efficiency improvements, the development of alternative energy sources (e.g., renewable energy), and responsible extraction practices. Another way to reduce the impact on the environment is to recycle and reuse materials whenever possible.

Role of Indian traditional knowledge in environmental conservation

Traditional knowledge in India, often referred to as "Indian traditional knowledge" (ITK) or "indigenous knowledge," plays a significant role in environmental conservation. This knowledge is deeply rooted in the culture, practices, and wisdom of indigenous and local communities across the country. Traditional Indian lifestyles can give us hundreds of examples of living in harmony with nature.

Nature conservation

The culture of conservation of nature in India is from the Vedic period. The four Vedas of Hinduism are full of hymns that consider the sun, moon, water, rivers, and mountains as gods and goddesses. Similarly, Buddhism and Jainism, which are the two most popular religions

from ancient times, also advocate nature conservation. Both religions believe in non-violence and forbid the killing of animals and the felling of trees.

Conservation of flora and fauna

Trees have also been given huge importance in ancient Indian traditions because their wood, leaves, fruits, etc. were useful to humans. The four Vedas of Hinduism are full of references to useful trees, flowers, herbs, etc. In Hindu puranas, trees are also considered gods, and they are not to be cut. Worshipping some trees and plants is also a part of Indian culture. The worship of the pipal tree became a ritual in India. There are some scientific reasons behind these rituals. The pipal tree continuously releases oxygen into the atmosphere, and therefore this information must have been given in spiritual form by our ancestors.

Sacred Groves

A sacred grove consists of a group of old trees situated on the outskirts of the village that were left undisturbed when the original settlers cleared the forest to set up a village. Such sacred groves were considered the abodes of god and goddess and hence protected by local communities. Many sacred groves in Himachal Pradesh, Maharashtra, Kerala, and Karnataka are conserved by local communities. The sacred grove helps to maintain the forest cover in that area and is also a safe home for many species of both flora and fauna. One example of a sacred grove is one that is maintained by the Khasi tribe of Meghalaya in the Khasi Hills. The Khasi people believe that those who cut down the forest will die, and sacred animals like tigers bring happiness and prosperity.

Conservation of wildlife

In ancient Indian traditions, animals have also been given an important place. Many Hindu gods and goddesses have some particular bird or animal as their vehicles, or vahana. Therefore, these animals are also considered sacred in India. This helps in the protection of wildlife and maintaining ecological balance. For example, a snake is considered sacred in India because it is associated with Lord Shiva, which helps to conserve the animal; otherwise, people will not conserve it because of its poisonous nature. Snake is

an important link in the food chain, which helps in maintaining ecological balance.

Bishnoi community and khejri tree conservation

Bishnoi is a community found in the Thar desert of Rajasthan, India. The people of this community banned the cutting of trees because they believed that trees were essential for a sustainable environment. They protected the khejri trees from being felled by the king's men. The people of the Bishnoi community hugged the trees to protect them, and many were killed as well.

Incorporation of Indian traditional knowledge into modern conservation practices

Incorporating Indian traditional knowledge into modern conservation methods can be highly beneficial for both environmental conservation and the preservation of cultural heritage. Here are some steps and considerations for effectively integrating traditional knowledge into modern conservation practices:

Preservation and documentation of traditional knowledge

The first step that should be taken is documenting and preserving traditional knowledge through ethnographic research and oral histories. This documentation is a useful resource for future generations and can assist in environmental conservation.

Engaging with indigenous and local communities

People should engage with local indigenous communities. They are the protectors of traditional knowledge and have a deep understanding of local ecosystems. Hence, their expertise should be used in decision-making processes and project implementation.

Respect traditional conservation and cultural practices

Many traditional conservation and cultural practices are closely related to the environment and have been effective for generations. We should respect these practices and adapt and incorporate them where applicable without losing their cultural significance.

Integration of traditional and scientific knowledge

Traditional and scientific knowledge complement each other. There is a need to integrate indigenous knowledge with scientific research and modern conservation practices to create an effective approach.

Educational initiatives

Educational programs should be implemented to promote the importance of traditional knowledge in environmental conservation. These programs can include community workshops and public awareness campaigns.

Conclusion

India has rich traditional knowledge and culture. Indian traditions, customs, and beliefs have given us so much knowledge about the conservation of nature. They teach us one fundamental principle of ecology that every creature has its own importance and role in maintaining ecological balance. Therefore, environmentalists have understood the importance of Indian culture in nature conservation and have focused on traditional knowledge system and its integration with modern approaches.

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3.

Role of Smart Classes in Indian Knowledge System

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The Bhartiya way is sustainable and strives for the welfare of all. It is important that we regain the comprehensive knowledge system of our heritage and demonstrate the ‘Indian way’ of doing things to the world. This requires training generations of scholars who will demonstrate and exemplify to the world a way of life so unique and peculiar to our great civilization.

The New Education Policy, 2020 recognizes this rich heritage of ancient and eternal Indian knowledge and thought as a guiding principle. The Indian Knowledge Systems consists of Jnan, Vignan, and Jeevan Darshan that have evolved out of experience, observation, experimentation, and rigorous analysis. This tradition of homologating and putting into tasking has impacted our learning-education, arts, administration, law, justice, health, manufacturing, and commerce. This has forced classical and other languages of Bharat, that were delivered through textual, oral, and artistic traditions. “Knowledge of India” in this sense includes knowledge from ancient India and, its successes and challenges, and a sense of India’s future aspirations specific to education, health, environment and indeed all aspects of life.

The NEP, 2020 seeks to introduce unscientific ideas and pseudoscience in the school and colleges curricula in the name of Indian Knowledge Systems. It is an attempt to change the narrative of Indian history and its intellectual contributions. The protagonists of this policy want to establish that Vedic India is the cradle of all civilizations. That explains their attempt to push back the Vedic period by 10000 years or more. The science-loving people in general and the scientific community in particular should launch a movement to save the education system from this attack.

The Concept of Smart Classes

Quality education is an essential requisite in today's territory of competitions. Technology has affected us in every aspect. The smart classes is a modernized method of education in Indian education script which provides quality education to scholars by helping them in better conception conformation, concept elaboration, enhancement in reading skills and academic achievement.

The traditional approach of lecture and note taking has lost its effectiveness as the ultramodern day around education grows. In sweats to grow academically it must be considered that discerned modalities of teaching and literacy are necessary to apply deeper situations of growth and abstract development. Since every pupil isn't interested in all subject matters. Still, it's the responsibility of the education system to employ a variety of openings for the scholars to gain interests, orchestrating academic growth and progression throughout childhood and adolescence. ICT has turned from being a technology of communication and information to a class creation and delivery system for preceptors and learners.

India has made considerable progress in academic education since independence with reference to overall knowledge, infrastructure and universal access and registration in schools and colleges. Two major developments in the recent time form the background to the present reform in teacher education in schools – the political recognition of Universalization of Elementary Education (UEE) as a licit demand and the state commitment towards UEE in the form of the Right of Free and Compulsory Education Act, 2009 for children. This would increase the demand manifold for good academic school

preceptors. The country has to address the need of supplying qualified and professionally trained preceptors in larger figures in the coming times. At the same time, the demand for quality education is steadily adding and the need for addressing the professional education of preceptors acquires great significance, manner and maintain pace with the ultramodern education.

Role of Smart Classes in Indian Knowledge System

E-learning and smart classroom aims at developing the scholars learning ability as the entire chapters become more fascinating to study and hence upgrade the results of the scholars. The smart classrooms are the new generation educational product which helps scholars gain remarkable marks and is a step to the future of education. E-learning is a revolutionary product in the field of education.

The Smart classroom learning approach provides learners of all groups and walks of life with a nine-step framework and a host of Smart Tools that motivate advanced levels of understanding. Through the process learners turn on and assemble background knowledge, process information, transform their learning into a product that shows what they know, and reflect on their learning. Structured talk and assessment as and for learning are precisely woven into the process to construct a thoughtful context for learning and to advance the thinking of all learners. A Smart Classroom duplicates the capabilities set up in a real classroom. The role played by smart classrooms in Indian education system is very much vital. Some of the important roles have been discussed hereunder:

Adaptive learning: Any classroom will always have learners of different capabilities of learning abilities in it which frequently makes it exquisite for teachers to make sure that all of them understand the ideas. The contemporary way of adaptive learning gives scholars the freedom to learn at their own pace and in the way they are most comfortable with.

Collaborative learning: Learning through collaboration is one of the most effective forms of strategy. Teaching, learning and strategy in isolation are very restrictive and hamper progress. Learning in

groups enhances the range of strategy and develops critical thinking. Collaborative and collective learning activities include collaborative writing, group projects, joint and analytical problem solving, debate and further. Collaborative and collective learning strategy redefines traditional pupil-teacher relationship in the classroom.

Computing devices: Computers are readily available in present classrooms, since they are essential tools for 21st century learners and replace the benefits of pen and paper. They give teachers the occasion to enhance their assignments and help them.

Mutual respect: Preceptors - Pupils should always have respect for each other. As now the part of preceptors is no longer to be the sage on the stage, learners shouldn't forget their value as they will always admit guidance from them. Also, preceptors should encourage scholars to speak with confidence and value their opinions.

Performance-based Results: Regular performance assessments are carried out by preceptors through various styles which aren't confined to tests. These can be by conducting quizzes and polls.

Student-centric: Teachers play the role of facilitators in smart classroom. They help learners to think critically. Students discover and master new ideas. Student-centric classroom surroundings put learners' interests first and are concentrated on each learner's requirements, capabilities and learning styles.

Learners take responsibility of their literacy: As learners are encouraged to laboriously share in their own learning, they become responsible for their literacy.

Learners understand and follow the rules and procedures: The learning terrain is carefully planned and well-organized. Class rules, procedures, and notices of forthcoming activities are posted in accessible places to help students stay on track. Students are constantly encouraged to remind them of their pretensions and liabilities goals and responsibilities. They follow class routines and understand what they're expected to achieve each day and how they're to go about it.

Objective of Smart Class Room

The following are some objectives for a Smart Class Room application:

- To help teachers to meet new challenges and developing students' abilities and performance.
- To enables teachers to access multimedia content and information that can be used for teaching students more effectively. Pedagogically sound and visually rich curriculum resources.
- To enables teachers to express their views and ensures that every child is understand the undertaken concept which ultimately affects his achievement.
- To make possible for the concepts to be understood clearly. To makes abstract conceptual real.
- To have interactive and live teaching to elaborate and compare different objects and perceptions towards the particular concepts
- To designed a module of smart class which allows a student to visualize the concept much better than static images. Visuals and animations that students will never forget.
- To move a step towards development where students' achievement is highlighted.
- To makes learning an enjoyable experience for students. Activities and games to make learning process easy.
- To make effective blending of technology with the classroom, and to Inform the teachers of classroom events
- To instruct simultaneously remote and local students.
- To improve creative thinking in learning process to visualize the concepts and practices with model and presentations.
- To optimize the use of e-resources wise e-books, e-journals, protocols, lecture notes, documentaries and so on.

- To customized content as per the school's scheme of work and to provide facility to updated the content.

Conclusions

The structure and arrangement of traditional classroom space doesn't go with changes happened in educational agents, methodology and social environment. Smart classrooms re-examine learning space and learners' prospects about what this space, along with coffers and methodologies, should be like.

The Smart classroom is a one-stop resource for learners demanding exploration, technology, or writing help. The operation of this new technology must be encouraged in the current education system. The Smart classrooms give the learners as well as teacher to learn through a new way and too in a different and intriguing manner.

It is fair to say that both students and grown-ups have come more and more technologically inclined. Scholars acclimatize snappily to new technologies, just as they will be anticipated to in the professional world. Cameras, remotes, and wireless bias are all common technologies that affect in further engaged literacy for scholars and adaption to a variety of learning styles. In the near future, classrooms will too have to acclimatize consequently and upgrade themselves. There's no stopping that.

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4.

Harmony with Nature: Exploring Environmental Values in Indian Education Legacy

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The legacy of environmental education in India creates the potential for a robust and everlasting connection between the world of learning and the natural world. This history, which is founded on ancient knowledge and philosophical concepts, has had a profound impact on India's educational institutions for millennia and continues to inspire environmental consciousness and sustainable practises in the modern day. The history of environmental education in India is evidence both of the enduring value of traditional practises and of those practises' adaptability in the face of emerging challenges.

Wisdom from long ago the educational tradition of India has always been intrinsically intertwined with the natural environment. By highlighting the interdependence of all life forms and advocating concepts such as "Ahimsa" (non-violence) and "Vasudhaiva Kutumbakam" (the world is one family), the Vedic scriptures and other ancient works helped to encourage care for the environment. In ancient India, students commonly received their education in secluded, natural settings known as gurukuls. These settings encouraged students to learn information not just from their teachers but also from observing and interacting with their surrounding environment. This all-encompassing method helped to foster a more in-depth understanding of the surrounding environment. Currently Implemented Changes in recent years, India's educational system has been updated to incorporate environmental education into its curriculum. Educational institutions in the current day are

increasingly emphasising ecological principles, as well as promoting environmentally responsible practises, including environmental studies, and embracing environmental studies.

Case Studies a variety of educational institutions in India are leading by positive example and working to raise awareness about environmental issues. They serve as a model for others to emulate by placing a strong emphasis on hands-on environmental education, environmentally responsible infrastructure, and conservation efforts. Impact on the Rest of the World The legacy of environmental education that India has passed down reaches far beyond its borders. Its ancient wisdom and principles have the capacity to stimulate a change in educational practises that would address important environmental issues on a global scale by fostering sustainability and ecological consciousness. This shift would be motivated by its ability to motivate a change in educational practises that would address urgent environmental issues on a global scale.



Fig. 1. Indian Education Legacy

The Ancient Indian Foundations of Environmental Wisdom

The intellectual legacy of ancient India gives significant understandings into how humans could cohabit peacefully with the natural environment. These understandings are located at the crossroads of spirituality, ethics, and ecological consciousness. The inquiry is a component of a wider project entitled "Harmony with Nature: Exploring Environmental Values in Indian Education Legacy." It investigates the underlying concepts that underpin India's

long-standing concern for the environment and investigates the ways in which these concepts are still relevant in the educational system and ecological practises of the country at the present time. The profound grasp of spirituality, ethics, and the human condition that may be found in India's ancient wisdom has been lauded for a very long time. This legacy is characterised by a profound reverence for the natural world and an all-encompassing understanding of how intricately humans are connected to the natural world.

This research study will investigate the philosophical foundations and historical background of environmental wisdom in ancient India in order to provide insight into how these principles have lasted through the years to effect environmental education and practises today. Investigate the sacred texts of the Vedas and the Upanishads, which provide a magnificent description of the spiritual connection with nature, reverence for life, and ecological equilibrium. Investigate the concept of dharma, paying particular attention to one's ethical responsibilities towards one's community and other living beings. Consider the ahimsa principle and how it connects to the goals of preserving the natural world and achieving a state of coexistence with all other forms of life.

Examine the Indian worldview, which considers everything to be an integral component of a unified and interconnected system. Investigate the ways in which this cosmic vision inspired sustainable agriculture, the management of water resources, and the preservation of wildlife. Investigate the significance of yajnas to the environment and the ways in which they help to preserve the natural balance of the surrounding area. When compared to modern industrial agriculture, traditional farming practises such as Vrikshayurveda should be evaluated for their ability to maintain a sustainable environment. This research study sheds light on the deep roots of environmental wisdom in ancient India, providing a prism through which to observe the unwavering dedication to ecological harmony that has been demonstrated over the course of many years. This highlights how important it is to infuse these outdated ideals into contemporary environmental stewardship and education, so paving the path for a more sustainable and harmonious coexistence with nature—not just in India, but all around the world.

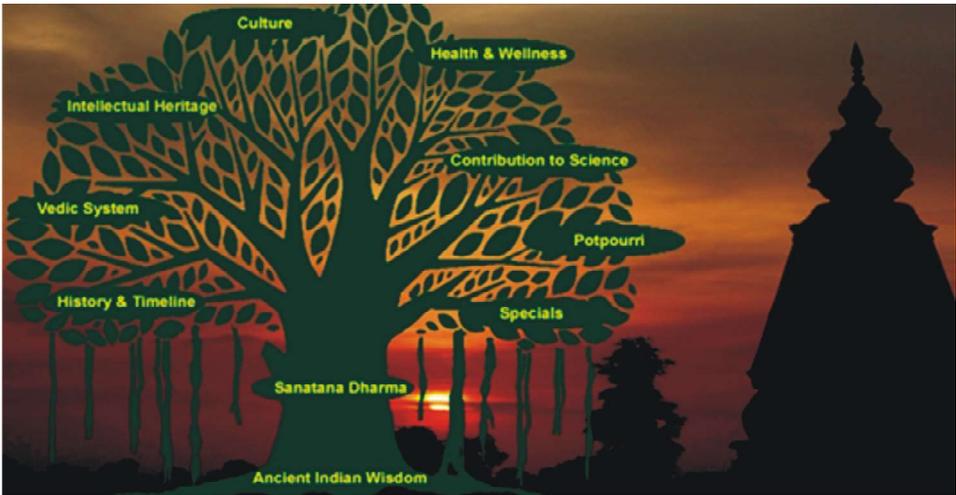


Fig. 2. Ancient Indian Foundations of Environmental Wisdom

Philosophical Foundations: Vasudhaiva Kutumbakam

The philosophy of Vasudhaiva Kutumbakam, which views the cosmos as a one, interconnected family, expresses it the best. In this essay, the ethical, spiritual, and ecological components of the notion are discussed. The importance of the concept as a cornerstone of Indian environmental principles as well as its continuous effect on modern environmental education and practises are emphasised throughout the study. "the world is one family" is what "Vasudhaiva Kutumbakam" means when translated from Sanskrit. It is a philosophical concept that expresses the ideas that all beings are connected to one another and that there is a universal brotherhood among them. Because we are all a part of the same global community, the phrase "we should treat one another with kindness, respect, and dignity" explains why we should behave in this manner towards one another.

This concept highlights how important it is to value diversity and encourage harmony, peace, and collaboration among all peoples, cultures, and nations. It also underscores how important it is to value diversity. The message of Vasudhaiva Kutumbakam is more important than ever in today's interconnected society, as we struggle with problems such as poverty, inequality, and conflict. The Indian philosophical and spiritual tradition has been using the term Vasudhaiva Kutumbakam, which is derived from the Sanskrit language, for millennia. It is believed to have originated in the

Upanishads and the Mahabharata, two ancient Indian books that emphasise the interconnection of all beings and the concept of universal brotherhood.

It is possible that the phrase's application in Indian music, art, and literature contributed to its increased notoriety in modern times. It is now widely acknowledged that Vasudhaiva Kutumbakam is a manifestation of India's spiritual and cultural inheritance. It is also seen as a living example of compassion, tolerance for variety, and a dedication to fostering global peace and harmony. In recent years, a growing number of organisations, governments, and individuals have adopted the philosophy as a means of developing international understanding and collaboration, which has contributed to an increase in the philosophy's exposure and appeal. For a great number of years, the timeless concept of Vasudhaiva Kutumbakam has been a part of India's cultural and spiritual inheritance. Its message of connectivity and universal brotherhood is still relevant in today's society, and it continues to drive individuals and organisations to work towards the establishment of a better and more peaceful world for everyone.

Inculcating the Philosophy

Vasudhaiva Kutumbakam translates to "the world is one family" in Sanskrit. This is how we may instill Vasudhaiva Kutumbakam's idea in our minds. Accept and appreciate the differences that exist among individuals, communities, and beliefs. This means embracing variety. Build your capacity for empathy and make an active effort to understand the experiences, emotions, and points of view of other people. Helping those who are in need and spreading pleasure and love are both great ways to inspire more acts of kindness. To provide a positive example for others, act as though you truly do believe that all people are one and the same.

Encourage Others to Do the Same Thing You Have an awareness of, and convictions about, the interconnectedness of all people; spread the word about this, and encourage others to do the same thing you have done. Implementing these ideas into your day-to-day actions may help you make a contribution towards the building of a world in which variety is recognised and respected, and in which people have a sense of connection and belonging to one another and to the world at large.

Relevance of Vasudhaiva Kutumbakam

The philosophy of Vasudhaiva Kutumbakam is still widely practised today because it emphasises the concept that all people, regardless of their nationality, race, or religion, are connected to one another and are ultimately one. Increases Empathy and Compassion, Which in Turn Can Promote More Harmony and Collaboration Realising that all individuals are members of one giant family helps cultivate empathy and compassion, which in turn helps promote world peace. The concept fosters appreciation for difference, which can help reduce conflict and nurture tranquilly. This is accomplished through the promotion of mutual respect and understanding among people. Encourages global responsibility the concept encourages individuals to take activities that benefit not only themselves but also others by recognising that the actions of one person can have an impact on the entire globe. This realisation drives people to adopt actions that benefit not just themselves but also others.

Supports sustainability the philosophy encourages the protection of the natural world for the benefit of future generations. It does so by promoting the idea that all people are interconnected and that the health and happiness of one person is directly related to the health and happiness of other people. The ideology of Vasudhaiva Kutumbakam promotes harmony, decency, and accountability among its followers. It also has the potential to make the world a better place by promoting sustainable development, better understanding, and international peace.

Environmental Education in Ancient India: Gurukul System

The Gurukul educational system was a sort of residential education in which the teacher, also known as a "Acharya," resided in the Gurukul. The Gurukul served as both the teaching centre and the dwelling for the students in the system. This educational system is predicated on arduous labour as well as strict adherence to the rules. It was expected of pupils to learn from their teachers and then apply that information to circumstances that occurred in the real world. The connection that existed between the instructor and the student was sacred, and it typically took the form of the student presenting the teacher with a Gurudakshina as a token of gratitude for the teacher's constant support rather than the teacher receiving any

type of official payment. Learning took the shape of skill-based and spiritually based instruction based on the Vedas, Puranas, and other sacred works during the Vedic era, when there was no specific type of formal education and learning took on this form.

The first time this educational system was adopted was during the Vedic era. These texts acted as vital guides for the pupils to use in expanding their existing bodies of knowledge. A quote attributed to Nelson Mandela states that "education is the single most powerful weapon you can use to change the world." Education has always been and will continue to be the single most important factor in any culture. It has changed over the course of history to accommodate the requirements of the era, to keep up with the most recent evolutionary alterations, and to make progress towards becoming a significant process that stimulates learning that continues throughout one's life.

The age-old education model known as the Gurukul is believed to have originated on the Asian continent and continues to serve as a wellspring of ideas today. This blog investigates the educational practise of the Gurukul, which was prevalent in ancient India, as well as its origins, characteristics, and relevance in today's world. The curriculum of a gurukul will often cover topics such as Vedic literature, Sanskrit, mathematics, and other traditional Indian disciplines.

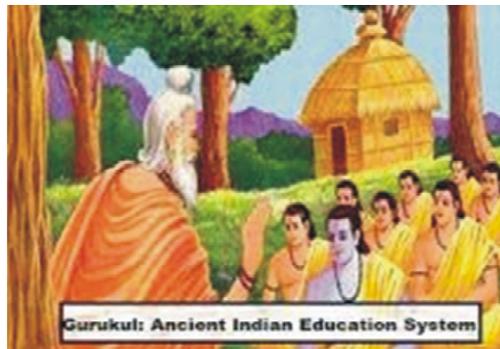


Fig. 3. Ancient Indian Education System

Evolution of Indian Education: From Tradition to Modernity

The acceleration of technological progress has been an essential factor in India's rising standard of living and economic prosperity.

The advancement of science and technology has had a significant impact on the expansion of India's economy. India's economic potential is further increased as a result of its demographic advantage, which is characterised by a younger labour force in comparison to that of other prosperous nations. It is vital to invest in quality education in order to capitalise on this advantage. Education not only provides young people with the skills necessary for the future, but it also supports economic development by cultivating a talented workforce that can drive the progress of industry.

In this day and age of education, institutions of higher learning such as schools and universities are modifying their instructional strategies to better correspond with shifting pedagogical approaches. India has what is considered to be one of the best and most extensive educational systems in the world. During ancient times, India was home to numerous renowned educational institutions such as Takshashila, Nalanda, and Vallabhi. These schools placed an emphasis on the whole growth and development of their students.

During the mediaeval period, educational establishments such as madrasahs and maqtabas encouraged the development of future religious scholars and leaders among their student populations. In the realm of contemporary education, India is home to a number of illustrious autonomous institutions, such as the Indian Institutes of Technology (IITs) and the Indian Institutes of Management (IIMs), which enjoy widespread international recognition. Historically, getting an education meant being away from one's parents and studying a wide range of topics, such as mental and physical health, politics, and economics. This helped students develop the skills necessary to thrive in a variety of settings that presented unique challenges. Even though it was heavily influenced by religion, mediaeval education was based on the same fundamental values as ancient education.

However, the modern era, which is characterised by schools such as IITs and IIMs, has seen substantial changes in the lifestyles of students, as well as in the curricula and overall development. Students of today frequently place an emphasis on both academic achievement and the accomplishment of their individual objectives. Institutions such as the Indian Institutes of Technology and the

Indian Institutes of Management, in addition to a few select commercial and government-aided universities, are the primary adopters of contemporary instructional practises. There is a lack of uniformity in the educational system as a direct result of the fact that every educational establishment has its own curriculum, methods of instruction, and living standards. Unfortunately, the curriculum of the current educational system is heavily weighted towards academic knowledge, and it lacks practical relevance in the actual world. The acquisition of academic knowledge rather than practical skills is currently seen as the major purpose of education.

This article seeks to bridge the gap between the educational practises of the ancient and mediaeval eras and the contemporary educational system by identifying areas in which contemporary education might benefit from historical insights and new advances. Specifically, the study will focus on bridging the gap between ancient and mediaeval educational practises and the educational system that is in place today. The content of this piece has been organised into three primary sections, which discuss topics such as curriculum, instructional methods, educational aims, qualities, types of educational institutions, higher education institutions, as well as the benefits and drawbacks associated with each educational system. In addition to this, it investigates the development of education throughout history, beginning in ancient times and continuing through mediaeval periods and into current times.

Revival of Eco-centric Values in Contemporary Education

In an era that is distinguished by environmental issues and global ecological consciousness, this study investigates the absorption of eco-centric ideas from India's rich educational legacy into current educational institutions. These ideas come from India's rich educational tradition. It investigates the ways in which ethical responsibility, environmental principles, and concepts of sustainable living are making a comeback in Indian education today and what this means for the development of a healthy environment-human connection. The imperatives of education in the modern period require that it address pressing issues pertaining to the environment. This research study examines the importance that eco-centric values play in maintaining the delicate balance between mankind and the natural world and its reappearance in modern education. The study

draws inspiration from the educational traditions of India. The worldwide environmental problems, which include the depletion of resources, the loss of biodiversity, and climate change, make it even more urgent to conduct a reevaluation of the educational goals that are being pursued.

In addition to this, the article explores the ways in which urbanisation and the progression of technology have contributed to an increasing gap between humans and the natural world. In addition to this, it examines the ways in which contemporary Indian education is reviving age-old values, such as reverence for nature, commitment to long-term sustainability, and ecological ethics. The degree to which the holistic and ecocentric pedagogy that is central to the Gurukul system may be successfully implemented in contemporary educational settings is a significant area of research. This article aims to offer insights into how India's rich cultural and historical heritage might benefit modern education in order to promote environmental stewardship, inculcate ecocentric values, and advance a more sustainable and peaceful coexistence between humans and the natural environment. These goals can be accomplished by advancing a more sustainable and peaceful coexistence between humans and the natural environment.

Case Studies: Eco-conscious Schools and Institutions

These case studies demonstrate how schools and institutions have been motivated and steered towards a harmonious relationship with nature by India's educational legacy, which is firmly founded in environmental consciousness. We can learn a great deal about how environmental ideals are incorporated into modern schooling by looking at these real-world instances. This section presents a number of case studies that highlight how Indian environmental values are being practically implemented in educational establishments. The various methods that institutions of higher learning and organisations are promoting sustainability and environmental consciousness are illustrated by these case studies.

Case Study 1: The Green School Initiative: Investigate the Green School Initiative, which is a programme that is being implemented in Indian schools with the goal of promoting environmentally responsible behaviour, sustainable building practises, and

environmental education. Discuss the impacts that the Green School Initiative has had on the communities, students, and participating institutions, putting special emphasis on the program's potential to cultivate environmentally conscious attitudes.

Case Study 2: The Forest School Model: Examine the model of the Forest School, which involves putting students in real-life environments and fostering in them a profound sense of ecological awareness and a sense of connection with the natural world. Draw attention to the educational benefits offered by the Forest School approach, such as better ability to solve problems, ecological literacy, and creative thinking.

Case Study 3: The Sustainable Campus Initiative: Examine how educational institutions in India are introducing sustainable measures on campus, such as water conservation, garbage reduction, and the use of renewable energy sources. The case study for this initiative is titled "The Sustainable Campus Initiative." Discuss the long-term feasibility of these efforts and how they contribute to the reduction of the carbon footprints left by educational institutions.

Case Study 4: Environmental Curricula and Holistic Learning: Within the context of Case Study 4, investigate the ways in which educational institutions in India are adding environmental curriculum that is in keeping with India's environmental values, with a particular emphasis on experiential learning and holistic education. Discuss the ways in which these classes have an impact on the students' ability to participate, their awareness of the environment, and their ethical behaviour.

Case Study 5: Community Engagement and Outreach: Investigate the methods in which Indian educational institutions are actively working with their local communities in order to encourage sustainable practises, environmental consciousness, and conservation for Case Study No. 5: Community Engagement and Outreach. Put more of an emphasis on how being involved in the community can lead to better environmental practises outside of the school.

Case Study 6: Cultural Heritage and Environmental Values: Examine the ways in which certain educational institutions in India draw on India's rich cultural history to teach students about environmental

principles by employing practises such as rituals, customs, and storytelling. The case study is titled "Case Study 6: Cultural Heritage and Environmental principles." Discuss the ways in which these actions are assisting in the preservation of the ecological and cultural legacy.

The Global Relevance of India's Environmental Values

People can increase their understanding, consciousness, and concern for the surroundings by means of participating in environmental education. They are also able to use this data and technology to protect the environment, keep it preserved, and make sustainable use of it for the benefit of both the current generation and the generations to come. three: In order to achieve sustainability, an individual must be incentivized to participate in social sports and take the initiative to pursue their own goals. It is intended for all types of newcomers, including students, out-of-school children, network leaders, policy makers, and the general populace, with the goal of constructing usable environmental related competencies. Environmental education focuses on topics such as the knowledge of how the environment functions naturally as well as how individuals may manage the environment to preserve the environment.

The primary goals of environmental education are to expand students' knowledge, raise their awareness of environmental issues, instill in them a sense of responsibility towards protecting the natural world, and equip them with the skills necessary to address environmental challenges. Since the Stockholm convention on the Human Environment, which was organised by UNESCO in 1972, environmental education has grown to assume an increasingly important role on a national and international scale. After the conclusion of the summit, UNESCO quickly implemented the International Environmental Education and Training Programme (IEEP). It is primarily an effort to improve people's knowledge and understanding of the environment, how it interacts with them, and what actions they can do in response to this interaction. In addition to this, it seeks to bring about accountable actions that may be necessary in order to sustainably protect, conserve, and improve the environment and all of its component parts.

Environmental schooling is a pragmatic response that can be taken to the deterioration of the natural environment. The goal of

environmental education is to inform college students in a comprehensive manner about the problems that are associated with their environment. This will enable students to address environmental problems with a sense of responsibility and the technical know-how to collaborate with various network contributors on the process of finding answers.

The assertion made by Agarwal (1986, Pages 60–61) that "This consciousness of environmental problems is social focus" is quite accurate. One strategy for overcoming difficulties of this nature is to organise a group effort with the goal of eradicating the social and financial factors that contribute to the degradation of the environment. Six 2. instruction concerning the immediate environment Environmental education encompasses all that has to do with people and the world in which they live, including but not limited to the study of nature, the cultivation of outdoor skills, the preservation of natural resources, and the investigation of herbal medicines.

E.E., or environmental ethics, is the study of the ways in which people have an effect on their entire natural and cultural environment, whether that impact is for the better or for the worse. the most important problem ends up being man, now not his generation, not the physical or organic international as a lovely entity, now not the arts or professions working in niche marketplaces, knowknowledge rather all of this stuff as they have an effect on the nice of human existence. Man and the environment cannot be separated because man is the only conscious manipulator of the environment, and because the goal of man's manipulations should be to improve the quality of the environment, man and the environment of the earth are inextricably linked. three, education by exposure to one's surroundings

It is not possible to separate environmental education into its own subject. Both the environmental problem and the training need to be approached from a variety of disciplinary perspectives. Even though each subject inside the modern-day curriculum incorporates a few facts around the surroundings, the subjects do not make sense when considered as a whole. Piecemeal education about the environment is insufficient because it does not take into account

the interdependence of the various components, much in the same way that piecemeal initiatives on environmental issues are fruitless.

As a consequence of this, Environmental Economics must be structured according to wholes rather than pieces in order for people to be able to comprehend the whole scope of environmental issues. Problem regions need to cooperate, integrate, and coordinate their efforts in order to increase the likelihood that E.E. will be successful in resolving the environmental problem. The multidisciplinary approach incorporates environmental education into each subject that is taught throughout the course of the year in each grade level, and it continues on through the traditional school years to become a learning experience that lasts a lifetime.

People need to learn the information, incentives, and skills necessary to change their conduct in a way that could improve their level of satisfaction with their existence, and the best way to do this is through environmental training. It hopes to make it possible for individuals to grasp problems and suggest solutions to such problems. In order to assist college students in the process of developing an environmental ethics, the phrase "guy is part of this earth as opposed to a careless exploiter of it" has been introduced. If we continue to abuse the environment, it will be extremely impossible to support even a moderate population.

If we take care of nature, it will continue to teach not only humans but all living things, thus it's in our best interest to preserve it. The knowledge that the environment serves as a natural backdrop is often regarded as one of the most significant aspects of environmental education. only so long as we continue to live our lives in accordance with the principle of regard for the earth and all other forms of life. it will be possible for us to live in harmony with the environment around us." They need to let go of their arrogance and realise both their role in the ecosystem of the globe and their ability to guide environmental policy at this point. When that time comes, they will have shifted their focus away from accumulating more material possessions and towards preserving the natural world. To put it another manner, if the environmental ethic does not offer them with a new purpose to exist, then all of the electricity and generation in the world is not going to be enough to preserve them alive.

Conclusion

Our journey through the halls of India's educational legacy has enlightened us to a significant reality in the search for a sustainable future: the past contains the keys to the present and the potential of harmonious coexistence with nature. In the course of our research on "Harmony with Nature: Exploring Environmental Values in Indian Training Legacy," we have arrived at a pivotal point in which the pressing concerns of the contemporary day meet the knowledge of the ancients. With this look at paper, we have embarked on a life-changing ancient journey, revealing the profound environmental ideals that are engrained in India's academic tradition. We have seen a remarkable continuity, a sacred thread that binds generations and civilizations, from the ancient Gurukul system, when students swallowed eco-centric ideas as a part of their holistic education, to the return of similar values in present educational institutes. This continuity can be traced back to the time when the Gurukul system was in use. Our research has shown that ideas that are environmentally focused will never become obsolete, regardless of the environmental problems that exist in the globe.

A number of the problems that the globe is coping with these days consist of climate change, ecological degradation, the loss of biodiversity, and the widening gap that is emerging between humans and the natural international. The educational history of India is a source of both thought and want with reference to this matter. We are reminded of the tremendous harmony that may be achieved through education that goes beyond the merely acquiring of facts to include consciousness and moral attention by the Gurukul system, which is completely founded on appreciation for nature, religious connectedness, and moral obligation. These concepts, which can be gleaned from the Upanishads, the Vedas, and various other sacred texts, have the ability to steer us in the direction of a more expansive, peaceful, and long-lasting destiny. The present educational system in India has been shaped by India's cultural inheritance, which recognises the desire to reintroduce these earth-centered ideas within the course of study.

The legacy of the Gurukul's knowledge is validated with the assistance of the inclusion of environmental research, the encouragement of sustainable living practises, and the enhancement

of moral obligation. The significance of India's intellectual legacy, on the other hand, is not limited by any one aspect of the country. It imparts upon you a message that is well-known in nature and emphasises the moral requirement of stewardship, the purity of nature, and the connectivity of all living paperwork. In the midst of the arena's efforts to confront the enormous ecological problems, these ideas have the potential to serve as a ray of hope. To summarise, the research into the history of education in India has uncovered a vital fact: it is possible, as opposed to being a pipe dream, to live in harmony with nature. It is possible for us to create a future that is sustainable, that is, one in which people and their environments may cohabit in harmony, reverence, and recognition if we internalise the knowledge of the beyond and incorporate it into the prevalent. As we embark on this joint trip towards a future free from violence, may we also remember to carry with us the lessons that have been passed down through India's illustrious intellectual history.

This history acts as a constant reminder that all of us are participants of an unmarried, global circle of relatives and that we have obligations now not handiest to every different however moreover to every other living creatures and the globe itself. By accepting this legacy, we are bringing ourselves a significant step closer to a future in which living in harmony with the natural world is not just an ideal but a reality.

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5.

Gandhi's Legacy and its Reflection in the New Education Policy 2020

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Mahatma Gandhi, the Father of the Nation, remains an enduring symbol of peace, non-violence, and ethical leadership. His ideologies and principles have left an indelible mark on various facets of Indian society, including the education system. In 2020, the Indian government introduced the New Education Policy (NEP) with the aim of transforming the education landscape and aligning it with the needs of the 21st century. This research paper delves into the connection between Gandhi's educational philosophy and the NEP 2020.

Gandhi emphasized the importance of holistic education, which encompasses intellectual, moral, and spiritual growth. He advocated for education that nurtures empathy, inclusivity, and a deep-rooted connection to Indian culture and heritage. The NEP 2020, with its focus on skill development, flexible learning, and promoting Indian languages, appears to echo some of Gandhi's principles.

Through this research, we seek to explore the extent to which Gandhi's legacy resonates in the NEP 2020 and how the policy can be further enriched with Gandhian ideals to create a transformative and inclusive education system. By analyzing the policy's provisions

and underlying philosophy, we hope to gain insights into how Gandhian values continue to guide India's pursuit of educational excellence in the contemporary era.

Objectives

The three objectives of this study are:

1. To examine and analyze Mahatma Gandhi's educational philosophy.
2. To assess the key provisions and goals of the New Education Policy (NEP) 2020 in India.
3. To identify areas of convergence between Gandhi's educational vision and the objectives of the NEP 2020.

Methodology

The study will employ a qualitative research methodology. It will involve an in-depth analysis of relevant literature on Mahatma Gandhi's educational philosophy and the New Education Policy 2020. Primary sources, such as Gandhi's writings and speeches, and official documents related to the NEP 2020, will be extensively reviewed. Secondary sources, including academic papers and articles, will also be used for a comprehensive understanding.

A comparative approach will be adopted to identify similarities and differences between Gandhi's educational principles and the NEP 2020 objectives. The study will critically examine how the policy aligns with Gandhi's vision of education and its implications for the current education system in India. The research will focus on providing insights into the impact of Gandhi's ideas on the formulation of the NEP 2020, shedding light on the relevance of his educational philosophy in contemporary educational practices.

Literature Review

The literature review will critically analyze and review existing scholarly works, research papers, and articles that discuss Mahatma Gandhi's educational philosophy and its impact on the field of education. It will also examine the key features and objectives of

the New Education Policy 2020 and explore any potential connections between Gandhi's principles and the policy's provisions. The review will provide a comprehensive understanding of the historical context of Gandhi's educational ideas and their relevance in shaping contemporary education policies. Additionally, it will highlight the gaps and areas where Gandhi's philosophy aligns or diverges from the New Education Policy 2020, contributing to the overall research on the topic.

The New Education Policy (NEP) of India, with its emphasis on skills development and vocationalization, aligns with Mahatma Gandhi's vision of education as a means of fostering self-reliance and character building. The NEP underscores the importance of skills and capacities, acknowledging the diversity of individuals' personalities, traits, and skills. This resonates with Gandhi's belief that each person possesses unique attributes that can be harnessed to achieve self-dependence through minimal use of local resources.

Gandhi's philosophy critiqued an education system that prioritized the intellect while neglecting the body and spirit. His concept of Basic Education, also known as Nai Talim, advocated for a holistic approach to education from ages 7 to 14. The NEP's framework of 5+3+3+4 years closely aligns with Gandhi's Nai Talim, creating a continuum that spans primary to secondary education.

A key convergence between Gandhi's values and the NEP is their emphasis on character building. The NEP aims to develop compassionate, resilient, and ethically grounded individuals. Gandhi's emphasis on character building, rooted in his belief in nonviolence and truth, echoes the NEP's goal of cultivating good human beings with a scientific temper and ethical values.

In 1908, Gandhi stressed character building as a primary objective of education in his work "Hind Swaraj." He recognized the contemporary challenge of educated unemployment and the need for a shift towards job-oriented and self-employment-focused education. This resonates with the NEP's objective of equipping students with practical skills for employability.

Gandhi's timeless principles of Basic Education offer valuable insights for the present education scenario. His vision of education focused on moral values and employability, aligning with the need for modern educational reforms. The NEP's emphasis on skill development, character building, and ethical values finds resonance in Gandhi's holistic educational philosophy.

Objective 1

The first objective of this study is to examine and analyze Mahatma Gandhi's educational philosophy. Mahatma Gandhi, a prominent leader and freedom fighter in India, had a unique and profound approach to education. His educational philosophy was rooted in his broader principles of nonviolence, truth, and self-reliance, which he believed were essential for building a just and harmonious society.

Qualitative Discussion and Analysis

1. **Nai Talim (Basic Education):** Gandhi's educational philosophy was centered around the concept of Nai Talim, which means "Basic Education." He advocated for an education system that would be practical, relevant, and connected to the everyday lives of people. Nai Talim emphasized learning through productive work, where students would be engaged in activities like farming, weaving, and other crafts, to develop both intellectual and manual skills. This approach aimed at fostering a sense of dignity and self-sufficiency among learners.
2. **Character Development:** Gandhi believed that education should focus on character development and moral values. He emphasized the importance of instilling virtues such as truthfulness, honesty, compassion, and self-discipline in students. For Gandhi, education was not just about acquiring knowledge but also about cultivating a sense of responsibility and empathy towards others.
3. **Inclusivity and Equality:** Gandhi's educational philosophy was deeply rooted in inclusivity and equality. He advocated for

education that transcended caste, class, and gender barriers. Gandhi believed that every individual, regardless of their background, should have access to education and opportunities for personal growth and development.

4. **Self-Reliance and Swadeshi:** Gandhi's emphasis on self-reliance and swadeshi (self-sufficiency) reflected in his educational philosophy as well. He believed that education should empower individuals to be self-sufficient and contribute to the economic development of their communities. Gandhi encouraged the use of indigenous resources and skills to promote local industries and crafts.
5. **Experimental Learning:** Gandhi promoted a hands-on and experiential approach to learning. He believed that education should not be confined to textbooks but should encourage students to learn through direct experience and experimentation. This approach aimed at nurturing creativity and critical thinking among learners.
6. **Nonviolence and Peace Education:** Gandhian education emphasized the principles of nonviolence and peace. He believed that education should foster a culture of peace and conflict resolution, teaching students to resolve disputes through dialogue and nonviolent means.
7. **Environmental Consciousness:** Gandhi's educational philosophy also emphasized the importance of environmental consciousness and sustainable living. He advocated for education that would promote respect and care for the environment and nature.

Mahatma Gandhi's educational philosophy was deeply rooted in his principles of truth, nonviolence, and self-reliance. His emphasis on Nai Talim, character development, inclusivity, and experimental learning makes his educational ideas relevant even in contemporary times. Gandhi's educational vision was not just about imparting

knowledge but also about nurturing compassionate and responsible individuals who could contribute to the betterment of society.

Objective 2

The main objective of this study is to assess the key provisions and goals of the New Education Policy (NEP) 2020 in India. The NEP 2020 is a comprehensive policy aimed at transforming the education system in India to meet the needs of the 21st century and address the challenges of the rapidly changing world. It covers various aspects of education, including early childhood education, school education, higher education, and vocational education.

Qualitative Discussion and Analysis

1. **Holistic Development:** The policy emphasizes the importance of holistic development, focusing not only on academic excellence but also on social, emotional, and physical development of students.
2. **Flexible Learning:** The NEP encourages flexible learning pathways, allowing students to choose their subjects of interest and pursue multidisciplinary approaches.
3. **Teacher Empowerment:** The policy aims to empower teachers by providing them with better training, professional development opportunities, and autonomy in the classroom.
4. **Inclusivity:** The NEP focuses on inclusive education, ensuring that every child has access to quality education, regardless of their socio-economic background or physical abilities.
5. **Technology Integration:** The policy promotes the integration of technology in education to enhance teaching and learning processes.
6. **Research and Innovation:** The NEP encourages research and innovation in education to foster creativity and critical thinking among students.
7. **Multilingualism:** The policy advocates for the preservation and promotion of Indian languages, encouraging multilingualism among students.

8. **Global Exposure:** The NEP aims to provide global exposure to students by promoting international collaborations and exchange programs.
9. **Assessment Reforms:** The policy proposes a shift from rote learning to competency-based assessment, focusing on practical knowledge and skills.
10. **Vocational Education:** The NEP lays emphasis on vocational education to equip students with employable skills and reduce the gap between education and the job market.

The New Education Policy 2020 in India encompasses a wide range of provisions and goals aimed at transforming the education landscape of the country. The qualitative analysis highlights its focus on holistic development, inclusivity, technology integration, and teacher empowerment, among other key aspects. Implementation of these provisions has the potential to bring about significant positive changes in the education system and foster the overall development of students in India.

Objective 3

The third objective of this study is to identify areas of convergence between Mahatma Gandhi's educational vision and the objectives of the New Education Policy (NEP) 2020 in India. The NEP 2020, approved by the Indian government, aims to bring transformative changes to the education system, aligning it with the needs of the 21st century. By conducting a comprehensive literature review, we can explore how Gandhi's educational philosophy resonates with the key goals and provisions of the NEP 2020.

Qualitative discussion and Analysis

1. **Emphasis on Holistic Development:** Both Gandhi's educational vision and the NEP 2020 share a common emphasis on holistic development. Gandhi believed in nurturing the physical, emotional, intellectual, and spiritual aspects of individuals, while the NEP 2020 stresses the importance of multidimensional development, incorporating cognitive, emotional, and vocational skills in education.

2. **Inclusivity and Equity:** Gandhi's vision of education focused on inclusivity and equal opportunities for all, transcending social, economic, and gender disparities. Similarly, the NEP 2020 aims to provide equitable access to quality education, ensuring that no child is left behind and bridging the educational divide among different groups.
3. **Experiential Learning and Skill Development:** Gandhi's Nai Talim emphasized learning through hands-on experiences and productive work, aligning with the NEP 2020's focus on experiential learning and skill development. The policy promotes vocational training, internships, and practical learning to equip students with relevant skills for employability.
4. **Environmental and Sustainable Education:** Both Gandhi's philosophy and the NEP 2020 recognize the importance of environmental consciousness and sustainable living. Gandhi advocated for education that fosters respect for nature, while the NEP 2020 encourages environmental education and ecological awareness.
5. **Character Building and Ethical Values:** Gandhi's educational vision centred on character development and the inculcation of ethical values. Similarly, the NEP 2020 seeks to impart value-based education, nurturing responsible and ethical citizens.
6. **Local Language and Cultural Preservation:** Gandhi advocated for the use of mother tongue in education to preserve local culture and heritage. The NEP 2020 emphasizes promoting education in regional languages to preserve linguistic diversity and cultural identity.
7. **Emphasis on Teacher Training and Development:** Both Gandhi's vision and the NEP 2020 recognize the critical role of teachers in shaping students' lives. The policy emphasizes continuous professional development and training for teachers, aligning with Gandhi's focus on teacher empowerment.

8. **Focus on Student-Centric Education:** Gandhi's educational philosophy and the NEP 2020 prioritize student-centric learning approaches. Both emphasize nurturing creativity, critical thinking, and problem-solving skills in students.

Conclusion

The literature review reveals significant areas of convergence between Mahatma Gandhi's educational vision and the objectives of the NEP 2020. Both emphasize holistic development, inclusivity, experiential learning, character building, environmental consciousness, and teacher empowerment. Identifying these areas of alignment can help inform education policymakers and practitioners in implementing the NEP 2020 in a manner that reflects Gandhian principles and values, fostering a more meaningful and transformative educational experience for the youth of India. In conclusion, the convergence between Mahatma Gandhi's educational principles and the NEP 2020 highlights the enduring relevance of his ideas in shaping India's education landscape. The NEP's emphasis on skills, values, and character building reflects Gandhi's belief in education as a tool for self-reliance, moral development, and societal transformation.

Implications and Recommendations:

The research's findings suggest implications for policy implementation and pedagogical strategies. Recognizing these convergences can aid in integrating Gandhian values into the execution of the NEP 2020, fostering a harmonious synthesis between enduring principles and contemporary needs.

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6.

Yoga and Health: From Heritage to Development

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Yoga is considered one of India's greatest cultural and spiritual heritage. It is one of the greatest achievements of Indian civilization, which has spread its influence far and wide. Yoga has been described as wisdom in work or skilful living amongst activities with harmony and moderation. Yoga is a timeless pragmatic science evolved over thousands of years dealing with the physical, mental, moral and spiritual well being of men as a whole. Yoga is associated with the culture and heritage of India. In Sanskrit yoga means 'to unite ' and describe a way to live a healthy life . In Yoga the mind is disciplined through meditation and the body is aligned and strengthened.

Some Concepts of Yoga

Some concepts of yoga are partially developed from Vedas. The word 'Yunjate' used in Rigveda gives the idea of the yoga for sense control. The later parts of Vedas provide the main foundation of Yoga teaching and philosophy known as Vedanta (absolute reality or consciousness) . Various types of yogic practices were used in the Epic period. Bhagavad Gita, is the best known of all yogic scriptures as it has elaborately presented the concept of Gyan yoga , Bhakti yoga and Karma yoga. These three types of yoga are still the highest example of human wisdom and even today people find peace by following the methods as shown in Gita. Patanjali's yoga sutras containing various aspects of yoga are mainly identified with eight fold path of yoga. During this period the aspect of mind was given importance and it was clearly brought out through yoga sadhana , mind and body both can be brought under control to experience equanimity.

Yoga has played a significant role in Indian culture. It has been used as a tool for personal growth and self-realization. In recent years, the popularity of Yoga has spread beyond India's borders and has become a global phenomenon.

Yoga : Useful for Health

Yoga is a practice that connects the body, breath, and mind. It uses physical postures, breathing exercises, and meditation to improve overall health. Regular practice of yoga can help in controlling our emotions and promote well-being. It helps to develop self-discipline and self-awareness if practiced regularly. It helps to strengthen our flexibility and posture. It increases muscle strength and balances metabolism. Yoga brings stability to the body, increases the lubrication of joints, ligaments and tendons of the body. Yoga is the only form of physical activity that provides complete conditioning to the body because it massages all the internal organs and glands. People suffering from backaches and arthritis are often suggested to do asanas that concentrate on the exercises of the muscles at strategic locations. Pranayamas are the best breathing exercises to increase the capacity of the lungs. Yoga works as an immunity booster and gives peace of mind. Yoga can create a permanently positive difference in the lifestyle of any body practising it on a regular basis.

From Heritage to Development

Yoga is a way to learn and understand the spiritual India. Yoga is associated with the culture and heritage of India. It's practised by the young and old without discriminating against gender, class or religion and has become popular in other parts of the world. Traditionally, yoga was transmitted using the Guru-Shishya model with yoga gurus as the main custodians of associated knowledge and skills. Nowadays, Yoga Ashrams provide additional opportunities to learn and practice of yoga. Ancient manuscript and scriptures are also used in the teaching in schools and universities. Yoga is a gift from India to the world. It can help transform global health.

International Yoga Day is celebrated annually on June 21. It was first proposed by the Prime Minister of India, Narendra Modi, during his address to the United Nations General Assembly in 2014. The proposal received unanimous support from the UN member states, and the International Day of Yoga was officially recognised on 11th

December ,2014. In this way our Prime minister has played a key role in having the United Nations declare June 21st as the International Yoga Day in 2014 . The government of India has been taking forward the momentum created by the celebration of International Yoga Day in 2015 and 2016 with greater and more active participation of people. The Government has continuously been promoting Yoga as a human treasure and a key to noble health. By establishing International Yoga Day , India has successfully brought attention to the importance of yoga in maintaining a healthy lifestyle and reducing stress . It has helped to create awareness and encourage people worldwide to adopt Yoga as a regular practice for improving well-being . India organizes and celebrates International Yoga Day with great enthusiasm , showcasing yoga's cultural and health benefits to the world. Indian Council for Cultural Relations (ICCR) under the Ministry of External Affairs, plays a crucial role in promoting Yoga internationally. It organizes international conference , seminars and workshops to foster a deeper understanding of Yoga 's holistic nature and it's connections with other traditional wellness practices . The Ministry of AYUSH implements various initiatives and schemes to support the development and promotion of yoga, including research, education and awareness campaigns. The Government of India established 150 Swami Vivekananda District Yoga Health Centres across the country to offer yoga training , workshops and therapy to promote yoga's health benefits at the grassroots level. The Department of AYUSH , in collaboration with the National Institute of Mental , Health and Neuroscience (NIMHANS) has developed a Tele Yoga Advisory . This initiatives utilizes telemedicine technology to provide yoga guideline and therapy remotely, making it accessible to a wider population. Six central universities offer full-fledged department of yoga , while over 30% of private, state and deemed universities have introduced certificate diploma or under graduate/postgraduate programmes in yoga. India collaborates with various countries and international organizations to promote yoga globally. These collaborations include joint research projects, cultural exchange and organizing international yoga conferences and festivals. India is working towards establishing standards and certification processes for yoga accessories and practices. The Bureau of Indian Standard, under the Ministry of Consumer Affairs, is involved in creating quality standards for yoga accessories to ensure good industrial practices.

Conclusion

Many countries have recognized the value of yoga in promoting wellness and have incorporated it into their health care systems. Now a days yoga has been integrated into rehabilitation programs, chronic disease management, mental health interventions and overall preventive health care strategies. The International Yoga Day has promoted cultural exchange by encouraging people to explore a number of health benefits associated with yoga. Yoga does more than burning calories and strengthening muscles, it is a workout which involves both body and mind. Yoga motivate us towards healthy eating and improve the metabolic system of body.

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7.

Significance of Environment in Indian Culture

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India is the birthplace of all religions like Hinduism, Buddhism, Jainism and Sikhism and these collectively known as Indian culture. Indian religions are a major form of world religions. India is full of cultures and these cultures have their value system and ethics. Which even helps the conservation of environment. If we take a look at Hinduism we worship the Sun, wind, land, trees, plants and water which is the very base of human survival.

Indian culture worship Nature

India culture considers the nature as “The body of God” different birds and animals are associated with different God and Goddesses and worshiped on their protection and preservation. Finally Hindu religion provides a moral guideline for environment preservation and conservation. We, as Indian, take pride in our strong culture heritage. Religion protects and nurtures nature.

Indian culture worship Trees

Indian culture tells people to worship trees and hence saving trees from being cut. In Rajasthan, a desert state of India, the Khejri tree is valued for its moisture –retaining properties, and it is not axed even if it comes between the constructions. The live example of this is seen in salasar Balaji temple in Sikar district. India always spokes about respect for nature and to live in harmony within it. Roots of the Banyan tree have been found to possess anti-bacterial and

antifungal properties. Indians also worship Banyan tree as per the story of Satyavan, when he died under a banyan tree, Savitri argument with Yama-the lord of death and won her husband his life. More ever trees are considered sacred in India. Different species of trees are major factor of environment.

Indian culture helps conservation of water

Indian traditions and culture have been protecting our ponds and other water bodies. We worship Ganga river and other rivers, the Kund at Trayambkeshwar is considered to be the origin of the sacred Godawari river. Indian communities are harvesting rain water since centuries as we knew the importance and scarcity of fresh water since long time. These rain water harvesting systems are specific and unique according to the topography, climate and rain at the location. Step wells of Gujarat, Tanks of Tamilnadu, Johads of Rajasthan and Zabo system of Nagaland are few examples. From birth till death in a Hindu society, water remains an essential ingredient in performing all rituals. The sacred rivers like Ganga, Yamuna, Saraswati and Kaveri are worship as mother goddesses from ancient time.

Indian culture helps conservation of wildlife animals

According to Indian culture conservation of animals are considered as the top most duty of human who was also considered the creation of God. "Ahinsa Parmo Dharma" is non-violence is still considered as the dharma of highest order. In India many animals are venerated, including the tiger, the elephant, the mouse and specially the cow. Garuda, lion, peacock and snake are part of our cultural ethos from time immemorial. Indian diet is primarily plant based. About 42 percent of households in India are strict vegetarian, they do not eat fish, meat or eggs. The remaining households are less strict vegetarian or non-vegetarian. The per capita meat in India for the period 2011-13 was 3.3 kilogram which is one-tenth of the global average. Bisnoise of Rajasthan have a tradition of protecting wildlife including Black-Buck since 1915 or so wild life balance nature's elements and the preservation of food chain. Wild life provides a large gene pool.

Indian culture worships Sun

Sun is the major source of energy. The Sun is heat makes liquid water on our planet possible. Without Sun, Earth's land, water and air would all be frozen solid. Sunlight is also essential for human

health and well being. The health benefits of sunlight including generating the production of vitamin D supporting bones health. Sun worship in Indian dates back to ancient times. Sun worship is a ritual followed by thousands of devotees in Hindu religion. Most Indians start their day by worshiping the Sun God. It is believed that worshiping this God gives energy and good health, which in turn, leads to money and prosperity.

Conclusion

India is richest country in the whole world, due to its unique tradition, practice etc. We, as Indian, take pride in our strong cultural heritage. Religion protects and nurtures nature. If we takes look at Hinduism, we worship the Sun, wind, land, trees, plants and water which is the very base of human survival. Indian painting, sculpture, architectural ornamentation and the decorative arts is replete with themes from nature and wildlife reflecting love and reverence. Under Indian mythology and epics environment has been given importance by treating them as God. Nature and environment do not treat anybody dependent on it as splintered on sectarian lines. Environment treats every living organism on equal footing. Nature and natural resources interact with everybody with same spirit of temperament and disposition. Environment is the true sense of the term enforces secularism.

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8. Education's Role in Transmitting Cultural Heritage in Society

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Culture and education are inseparable and yet complementary with multiple points of interaction. Culture paves the way for education while education is responsible for flavouring the cultural values in life. Therefore, both have to be interwoven in various ways. A sense of pride in our culture has to manifest itself through all the stages of an individual's growth. Primary education is where it all starts and the child begins to respect the importance of a value-based life as he or she sees things and events happening, and the behavior of others, around. When a child is born in society he/she becomes a part of the society. Culture is the main aspect of any society that teaches them to live in cooperation with each other. Culture is the social behavior of any society which has its trends and values. Every society has its way of living life and lifestyle. Culture focuses on the knowledge of ethics, norms, traditions, etc. The success of any culture is based on modern inventions of society. Culture is the social change of any character in the society. It plays a very important role in the development of the culture; both are interconnected with each other. Education teaches about social and cultural values. Education prepares the students for dealing with cultural ethics and norms. Various elements of culture help the individual in positively adopting the natural and social environment. Each person in society has his or her behavior attitude qualities and mentality to perceive the world around. Education changes the perspective of the individual toward

different modes of community. Social change always takes place when humans need change in society. Social change comes into action when the existing social setup fails to understand and meet the needs of humans. Culture is the social change of any character in society. When a child is born in any society after his birth, he learns the teachings of his parents and adopts them with time. Culture is transmitted from one generation to another generation because a child always learns the behavior of their elders. Education always initiates permanent changes in the personality of human beings as well as social change.

Culture and Education:

An education system is the reproductive organ of every culture. Education includes both formal schooling and informal transmission of knowledge, skills, and attitudes. Individual members of a society grow old and die, while new members are born and grow to maturity. Yet a society's culture is a living entity that transcends all the society's members. A culture changes over time but has a recognizable continuity of basic values and behavioral patterns that distinguish it from other cultures. That continuity is provided by the educational system. If an educational system is altered, its transmission of culture will be distorted. The deliberate alteration of an educational system can be a very effective way to change a culture.

Education is conceived as a systematic effort to maintain a culture. In a technical sense education is the process by which society through schools, colleges, universities, and other institutions deliberately transmits its cultural heritage, accumulated knowledge, values, and skills from one generation to another. Education is an instrument of cultural change as well as social change. Curriculum writers and school administrators can have conferences, publish papers, and make decisions to change the curriculum, the teaching methods, or the administrative structures to guide the acquisition of student knowledge, skills, and attitudes regarding culture, and values into social change.

All these collectively form the personality that develops in the process. Therefore, it is necessary to inculcate the importance of

education and value-based living for a truly sustainable development of the rural sector. The maxims of Gandhiji, Tagore, Vinoba Bhave, and many other social activists, bordering on equitable living, rural empowerment, voluntary rural reconstruction and transformation, and sustained rural development, have to be made as the central themes of the education system. Education founded on strong cultural values will help students understand and acknowledge the significance of culture and social change in the development context.

Culture also includes art music, customs, values, and the old tradition of our elders. And because of this advancement and invention, culture is changing and adopting new ideas to survive in society. Culture also increases the economy and growth of the country. When the phrase education is rooted in culture, what it means is that education has to serve as an engine for development, and social change, especially in rural areas.

Influences of Education on Culture

1. **Preservation of Culture:** Culture is the blood vein of a society, which needs to be conserved. It is an important function of education to help in the preservation of culture or social heritage. Education, through its specialized agencies, tries to inculcate traditions, customs, values, arts, morals, etc. into the tender minds of pupils.
2. **Transmission of Culture:** In addition to the preservation of culture, it is a task of education to maintain the continuity of culture by handing down the existing cultural experiences, values, traditions, customs, etc. from one generation to another through its various programs and practices. Without this transmission, the nation's survival may be the toughest task and the progress of mankind can be stifled. Society reels in utter chaos and confusion. The famous sociologist, Ottaway writes, "The function of education is to transmit the social values and ideals to the young and capable members of society".
3. **Promotion of Culture:** Besides preservation and transmission, another vital function of education is to modify the existing

cultural patterns in light of changes visible in the needs and demands of society. These changes are heightened owing to cross-cultural variables. Thus, new cultural patterns are formed by replacing and reorienting the old outmoded cultural forms to suit the changing needs of time and man. Therefore, society makes ostensible progress. This part of education is called the progressive function of education. As such, education performs by constantly reorganizing and reconstructing human experiences for the promotion and enrichment of culture.

4. **Equips Man to Adapt to Changing Cultural Patterns:** It is an admitted fact that every generation after generation modifies the old and archaic cultural forms and adds new ones to their best advantage. This is possible through educational means and methods. Moreover, education equips the individual to adjust him or herself to the changing cultural forms and patterns for better and successful living.
5. **Moulding the Personality:** It is a universal element of culture that personality is shaped and molded by education. An individual's personality develops when he or she continues to forge a web of relationships with other members of society. This form of interaction is made possible by education according to the behavioral patterns or culture of the existing society. In simple words, culture is an informal agency of social control that helps in molding and shaping the behavior of individuals desirably.
6. **Restoring the Unity of Mankind through Diffusion of Culture:** It is a dire necessity of the civilization that the unity of mankind is to be restored. It is to be made possible through education which effectively assists in the diffusion of culture. Education should treat human culture as a whole like a full-blossom flower whose different petals represent different groups. Education, further, helps in disseminating modern cultural values like cooperation, unity, mutual understanding, the brotherhood of men, love and appreciation for others, etc. to mankind for its enduring survival.

7. **Removing Cultural Lag:** The concept of cultural lag is attributed to the famous sociologist Ogburn. When there exists a difference between material culture and non-material culture, there emerges this lag concept. As it is seen, material culture is advanced due to the rapid strides in science and technology and people adopt modern lifestyles ignoring the non-material part of culture. Therefore, non-material culture lags behind the former. This situation is a cultural lag that needs to be eliminated by education through its various programs and myriad activities. Culture is the antithesis of social change and progress of the civilization.

Conclusion

Culture and education are inseparable and yet complementary with multiple points of interaction. Culture paves the way for education while education is responsible for flavouring the cultural values in life. A sense of pride in our culture has to manifest itself through all the stages of an individual's growth. Primary education is where it all starts and the child begins to respect the importance of a value-based life as he or she sees things and events happening, and the behavior of others, around. All these collectively form the personality that develops in the process. Therefore, it is necessary to inculcate the importance of education and value-based living for a truly sustainable development of the rural sector. Education founded on strong culture and values will help students understand and acknowledge the significance of culture in the development of a social change context. From the foregoing discussion, it is crystal clear that there exists a close relation between education and culture. Education socializes an individual on the one hand and it preserves, transmits, and promotes the culture of a society on the other. In brief, education and culture are mutually interwoven, complementary, and supplementary in all their aspects. It is education that reifies the culture.

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9. Value-Centric Education for Ethical Growth: An Inclusive Perspective on NEP Enriched by the Wisdom of Srimad Bhagavad Gita

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On July 29, 2020, the Union Cabinet set the stage for ground-breaking reform in the school and higher education systems by announcing the New National Education Policy (NEP). The New Education Policy 2020 is an effort to restructure school curricula and pedagogy in a new '5+3+3+4' layout, to redesign school education to cope up with the modern learning needs. The present educational system, which is based on rote learning, excessive grade pressure, excessive competition, a failure to concentrate on overall growth, an inadequate training, and antiquated instructional approaches, has had a significant impact on student's quest for knowledge. With the advent of the social media era, students became more westernised. It emphasizes the importance of education that goes beyond knowledge and skills, focusing on ethics, empathy, and social responsibility. Although the government made remarkable efforts to formulate a new education policy, but the need of character building remains intact. The older generation is frequently seen complaining about the younger generation becoming careless, disrespectful, irresponsible, disobedient, materialistic, and directionless, living hopelessly in its own world of illusion. Such a

generation poses a threat not only to the family they belong to, but also to society and ultimately, to the nation, hence the whole world. An alarming rise in the number of crimes committed by teachers and students points to a critical need for value-centric education. The current educational system only produces virtually worthless graduates with zero tolerance and respect.

Srimad Bhagavad Gita, a sacred text within the epic Mahabharata, is called the manual of this human life. In the present study, an attempt has been made to understand the applicability of the teachings embedded within its verses and interpret their relevance for imparting value education in the present scenario to promote harmony and tolerance among diverse cultures and belief systems, fostering a sense of global enlightenment and liberation from the limitations of material existence. Values-centric education is a mass movement aimed at fostering moral, responsible, and compassionate young folks by sculpting and teaching strong qualities by emphasizing universal values that everyone share. It is the deliberate, pre-emptive effort made by school systems, and states to instil essential core ethical principles in their students such as compassion, sincerity, fair treatment, obligation, and honour for self and others. Character is created over time through a sustained method of teaching, learning, and practice.

Review of Literature

(Ramachandran, 2015) in this study titled “Need of Bhagavad Gita Concepts in the Present Scenario of Professional Education” the author examines the understanding of education's significance as it appears in the Bhagavad Gita, one of many facets of educational philosophy. According to the study, the interpretation of the Bhagavad Gita's complete definition of education may encourage academics to go deep into the annals of human history in pursuit of insightful information.

(Shrotri, 2020) This research sheds light on the necessity and usefulness of character development through a value-based educational system. It has been noted that many teachers lack moral and ethical ideals when it comes to carrying out their basic obligations as educators and responding to hypothetical questions. Most teachers report that their kids lack values and believe that

students should get value education, but they assert that it is mostly the parents' responsibility to instil values in their children.

(Awasthi, 2014) This study highlights the youth's propensity for western lifestyles and cultures. Parents are focusing more on a child's materialistic education based on their academic performance and ignoring their holistic development. The research emphasizes the need for the necessity to modernise our curricula and syllabus to make them more conducive to instilling moral principles in younger generations. The study also discussed the Indian educational system of the Ramayana or Mahabharata era, when values were taught to children alongside formal education in Gurukuls , where Guru or Priest instructs the pupils at their Ashrams using various teaching methodologies and trains them for lifetime.

(Majumder, 2019) The researcher has viewed the importance of instilling values in future teachers through his study. The author has the impression that character development and moral and ethical issues need to be included in teacher education programmes. The study suggests that teachers require a comprehensive professional ethics training programme as part of their value-based education.

(Borah, 2014) According to the study's conclusions, youth must cultivate holiness in their hearts and minds. The amount of money the government spends on education for its citizens keeps rising. Additionally, criminality is rising daily. Thus, two incompatible events are taking place. Along with teaching the subject, emphasis should be placed on teaching students, the moral principles and ethical behaviour. Making the pupils decent human beings as well as good professionals is crucial for saving the world and humanity.

Value-Centric Education provides a strong foundation for Ethical Growth

Value-centric education sets a strong base for ethical growth by instilling moral and ethical values, individuals are equipped with such tools which make them ready to face life's challenges with integrity and empathy, impacting their personal and societal development. Our childhood experiences are especially influential because they frame the adult that we become. This places a great responsibility on the school's management to transform a child into a good human being. A child attends school for approximately 900

hours per year, which however goes into information overload, which is mugged up and thrown up on answer sheets to get handsome grades. The teacher instructs the students to succeed and the student does it by any possible means because the goal of modern education is to score high grade and earn handsome packages leaving no place for ethics and moral values. This creates a sense of brutal competition and they keep running in the blind race and become directionless. They are frequently aggressive and incapable of dealing with stress. Nobody teaches them how to deal with failure.

With the onset of western culture, both parents are working day and night to maintain a quality of living in order to ensure that neither they nor their children fall behind in society of possessions. A new culture of nuclear families has emerged under the banner of modernisation and financial constraints. The child that was nurtured by grandmother and grandfather hearing the Ramayana and Bhagavad Gita, are now being raised by professionals who has nothing to do with values and character building of a child. The decline in the instillation of values can be seen in the rise in crimes, violence, and other detrimental behaviours in society. Nowadays, juveniles—the next generation—commit many crimes without even feeling guilty about it. It is likely that none of those offenses would have been committed if they had a full education of the moral principles.

As a result, the whole responsibility of character-building falls on the shoulders of school, colleges, and universities through the redesigning of the curriculum which is based on values system of ancient Vedic times. Value Education needs to be given more priority by educational policymakers, with a focus on teaching human values for a better outcome. In order to make the world a better place to live in, today's generation must have a value-centric education which will help them grow to be more ethical and they will be able to make good choices and be better individuals, which benefits society.

Section IV: Role of Srimad Bhagavad Gita in Value-Centric Education and Character Building

The true source of knowledge is self-awareness. Lord Krishna calls the ninth chapter of Srimad Bhagavad Gita as the king of all knowledge as it provides the most confidential knowledge about

the art of self-realization which is the supreme knowledge. Lord Krishna in chapter 9 verse 2 talks about the king of all knowledge as follows:-

राजविद्या राजगुह्यं पवित्रमिदमुत्तमम् ।
प्रत्यक्षावगमं धर्म्यं सुसुखं कर्तुमव्ययम् ॥२॥

(Prabhupada, Chapter 9 Text 2, 1972) This knowledge is the king of education, the most secret of all secrets. It is the purest knowledge, and because it gives direct perception of the self by realization, it is the perfection of religion. It is everlasting, and it is joyfully performed.

This ninth chapter of the Srimad Bhagavad Gita contains a lot of information about quality education which is most confidential as transcendental knowledge entails distinguishing between the soul and the body. And devotional service is the crowning achievement of the king of all confidential knowledge.

Lord Krishna in the verses 13.8 to 13.12 described the real knowledge as follows:-

अमानित्वमदम्भित्वमहिंसा क्षान्तिरार्जवम् । आचार्योपासनं शौचं स्थैर्यमात्मविनिग्रहः ॥८॥
इन्द्रियार्थेषु वैराग्यमनहङ्कार एव च । जन्ममृत्युजराव्याधिदुःखदोषानुदर्शनम् ॥९॥
असक्तिरनभिषङ्गः पुत्रदारगृहादिषु । नित्यं च समचित्तत्वमिष्टानिष्टोपपत्तिषु ॥१०॥
मयि चानन्ययोगेन भक्तिरव्यभिचारिणी । विविक्तदेशसेवित्वमरतिर्जनसंसदि ॥११॥
अध्यात्मज्ञाननित्यत्वं तत्त्वज्ञानार्थदर्शनम् । एतज्ज्ञानमिति प्रोक्तमज्ञानं यदतोऽन्यथा ॥१२॥

(Prabhupada, Chapter 13 Text 8-12, 1972) Humility, pridelessness, nonviolence, tolerance, simplicity, approaching a bona fide spiritual master, cleanliness, steadiness and self-control; renunciation of the objects of sense gratification, absence of false ego, the perception of the evil of birth, death, old age and disease; nonattachment to children, wife, home and the rest, and even-mindedness amid pleasant and unpleasant events; constant and unalloyed devotion to Me, resorting to solitary places, detachment from the general mass of people; accepting the importance of self-realization, and philosophical search for the Absolute Truth—all these I thus declare to be knowledge, and what is contrary to these is ignorance.

The values mentioned above, should serve as the foundation for the modern educational system. Srimad Bhagavad Gita addresses the ethics, morals, and values of life. It also discusses the necessity,

significance, and role of teachers in society. When and how to approach a teacher is also covered in the Gita. By accepting Arjuna as a student, Lord Krishna set a precedent for how a student should behave.

Findings and Recommendations

The current study was conducted to discover the implications of the Srimad Bhagavad Gita, which can act as a breakthrough in reshaping the modern education system into a new value-oriented education system. Value-centric education can bring about a dynamic change in the educational system not only of India, but also of the world, which can set the stage for Bharat as 'Vishwa Guru' as this scriptural knowledge emanates from India. With almost 700 verses, Srimad Bhagavad Gita provides solutions to a wide range of problems for a wide range of people with a wide range of needs. Some of the values were are recommended to be urgently needed to be added to the current curriculum:

1. **Humility** - The material perception of life makes us keen to receive honour from others, but from the perspective of a man in absolute knowledge—who knows that he is a soul—anything pertaining to this body, honour, or dishonour, is worthless. As a result, students, can learn how to respond appropriately to the stimuli provided by social influences.
2. **Nonviolence** – Students frequently develop the habit of bullying or speaking harsh words in normal address in friendships, which harms the other person emotionally. Unless one is elevated people to the spiritual knowledge, one is engaging in violence. Therefore, students should be made to learn to be compassionate towards others. That is nonviolence in action.
3. **Tolerance** – By not expecting anything from anyone, a student learns to be emotionally intelligent. There will be many insults and dishonour from others if one is engaged in material or spiritual advancement. As a result, there may be many impediments to progress, but we must be patient and persevere in our efforts.
4. **Simplicity** – It implies that one should follow the elevated principle of “High thinking and simple living” which entails

to gather only whatever is really required instead of having extra show offs, which may cause unnecessary distractions in the tender minds of the students.

5. **Cleanliness** – It is crucial for spiritual and material advancement, which is lacking in today's education system. There are two types of cleanliness: external and internal. External cleanliness entails bathing etc., but internal cleanliness entails constantly remembering Krishna. Activities and experiences related to the student's internal as well as external cleanliness should be worked on.
6. **Steadiness** – A strong desire to advance in one's spiritual life is called steadiness. Students today believe in instant success and do not know how to put forth consistent effort. Lord Krishna discusses consistency and detachment in the Srimad Bhagavad Gita. Students should be taught to learn to persevere in the face of failure rather than giving up easily and detach from the unwanted distractions.
7. **Self-control** – It entails refusing to accept anything that is harmful to one's spiritual progress. This should become habitual, and anything that stands in the way of material or spiritual progress should be rejected. With students bombarded with negative influences from social media and the internet, they should be taught self-control and the art of mind control.
8. **False Ego** – It means accepting this body as one's own. Real ego is when one realises he is not his body but rather a spirit soul, which is an eternal fragment of Supreme soul, i.e., Lord Krishna, the Supreme Personality of Godhead. Students who live on the concept of "me and mine" and are often concerned about their appearance, social stratification, big bucks, standards, and so on should be awakened to their attachments to their body, which is false ego.

Krishna consciousness, according to the Srimad Bhagavad Gita, is the best process for making the environment pleasant. If one is fully conscious of Krishna, he can make everyone very joyful. The process of attaining Krishna consciousness is simple. One only needs to chant Hare Krishna, Hare Krishna, Krishna Krishna, Hare Hare; Hare Rama, Hare Rama, Rama Rama, Hare Hare, accept the

remnants of foodstuffs offered to Krishna, engage in Deity worship, and read and discuss books like the Bhagavad-Gita and the Srimad-Bhagavatam. Whole school can gather in the morning for the prayers and chant Hare Krishna together.

Conclusion

Despite so much progress in the field of knowledge, there is not a single Institute of Education in the world that teaches the science of soul, which is our true identity. A good education is one that aids in the journey within to discover oneself. The basic values of truthfulness, nonviolence, cleanliness, and austerity, as declared by Lord Krishna in Srimad Bhagavad Gita, appear to have lost their place in today's education system. The education system can be transformed into a value-driven system by purifying students' consciousness, with character development as the ultimate output. There is no harm in learning modern education, but it should not come at the expense of values and character. By integrating the wisdom of Srimad Bhagavad Gita into education aims to nurture individuals which will bring a positive impact on the society and they get insights into achieving a balanced and purposeful life.

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10.

The Immortal Heritage of Humanity: Indian Art and Music

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Cultural heritage ie art and music is aspect of human expression that play a significant role in shaping socities and preserving their rich histories. Cultural heritage encompasses the customs, traditions, artifacts, and practices passed down through generations, reflecting the identity and values of a community or civilization. Art music, represents a form of cultural expression through sound. Composing intrigate melodies and harmonies that evoke emotions and convey stories. Art music,often reffered to as classical music, transcends temporal and geographical boundaries, offering a glimpse into the artistic achievements of various cultures throughout history. It encompasses genres like orchestral symphonia, opera, chamber music, and more composed by renowned figures such as Mozart, Beethoven, Bach and many others.

Indian art is a captivating tapestry of creativity that spans millennia, offering a vivid reflection of the country's diverse cultures, traditions and history.

Indian art is a vibrant testament to the rich heritage and artistic ingenuity of the India. With roots dating back to the Indus Valley civilization, Indian art has evolved through various dynasties and empires, including the Maurya, Gupta, Mughal, and many others. It encompasses a wide spectrum of artistic forms, including sculpture, painting, architecture, dance, music, and textiles.

Each of these art forms is deeply intertwined with India's spirituality, mythology, and philosophy, often imbued with spiritual symbolism and storytelling,

In this exploration of Indian art, we will journey through its diverse styles, techniques, and influences, uncovering the profound impact it has on the global art world. From the intricate miniature painting of Rajasthan to the colossal sculptures of Khajuraho, Indian art offers a captivating glimpse into the soul of a nation where tradition and innovation coexist in harmony.

Indian heritage is an awe-inspiring tapestry of art and music that has woven itself through the fabric of the nation's history and identity. Spanning thousands of years, this legacy encompasses the intricate sculptures of ancient temples, the mesmerizing rhythms and melodies of classical and folk traditions, and a vibrant array of visual and performing arts. India's artistic and musical heritage is not only a reflection of its diverse cultures but also a source of profound spiritual and emotional expression.

I will embark on a journey to uncover the profound beauty, historical depth, and enduring significance of Indian Art and Music

Reviews of Literature

Harsha D'souza Traditional artisanal forms like basket weaving, pottery, and textile weaving should be saved from neglect and extinction. -

Kalyani Gongi People in the rural areas tend to migrate to cities in search of a better job and lifestyle, leaving behind ancient culture and art forms.

Anya Kotecha India has a rich cultural heritage that is demonstrated through its diversity in language, art, festivals, and - most importantly - food. -

Asha Sairam Our country is blessed with a vast and relatively untapped repository of rich artisanal skill sets; what is needed is channelling their creativity to cater to an urban audience.

Kiran Nadar We have great teachers, art connoisseurs, students but few opportunities to bring them all together.

Parimal Vaghela It is very difficult to improve art appreciation in India; art is not seen as an essential commodity. -

Background to the Study

The immortal heritage of humanity is a tapestry woven from the threads of countless generations, each contributing to rich and diverse fabric of our existence. It is a heritage that transcends time, a legacy passed down from the dawn of civilization to the present day. And one that will continue to evolve into the future,

At the heart of this immortal heritage lies the indomitable spirit of human innovation. From the discovery of fire to the invention of the wheel, from the printing press to the internet, humans have displayed an innate drive to create, to explore, and to push the boundaries of what is possible. This unyielding curiosity and ingenuity have led to advancements in science, technology, and medicine that have transformed the way we live and have extended our lifespans.

In the mosaic of human history, few cultures shine as brightly as India's. Rooted in antiquity and enriched by countless generations, Indian art and music are testament to the enduring spirit of creativity, expression, and spirituality. In this article, we journey through the immortal heritage of humanity as embodied by the captivating realms of Indian art and music.

A Tapestry of Art:

India's artistic heritage is as diverse as it is ancient. It finds its origins in the Indus Valley Civilization, where pottery and seals adorned with intricate designs showcase an early reverence for aesthetics.

The classical period (2nd century BCE to 12th century CE) heralded the creation of masterpieces such as the cave paintings at Ajanta and Ellora. These frescoes, teeming with scenes from Buddhist narratives, epitomize the fusion of art and spirituality.

The temple art of Khajuraho and Konark, with its sensuous yet spiritual sculptures, demonstrates a profound understanding of the human form and the divine. These monuments stand as testaments to the exquisite craftsmanship of their time.

Medieval India witnessed the emergence of Mughal art. Miniature paintings, characterized by intricate details and vibrant colors, tell stories of emperors, courts, and cultural syncretism. They are windows into an era of refinement and cultural exchange.

Regional styles, such as Rajput and Pahari paintings, flourished alongside Mughal art. These diverse traditions celebrated nature, poetry, and local customs, painting a vivid picture of India's rich cultural tapestry.

The modern era (late 19th century onwards) saw a renaissance in Indian art. Icons like Raja Ravi Varma pioneered realistic and emotionally charged depictions. This period also gave birth to movements like the Bengal School of Art, which sought to reconcile Indian traditions with Western techniques.

Harmony in Music:

Indian music is a harmonious blend of classical and folk traditions. Hindustani (North) and Carnatic (South) classical music styles are characterized by intricate ragas and talas, creating a musical landscape that mirrors the complexity of human emotions.

Hindustani classical music, with roots in Vedic chants, has produced virtuosos like Pandit Ravi Shankar, who brought the sitar to international acclaim, and Ustad Bismillah Khan, whose mastery of the shehnai transcended borders.

Carnatic music, deeply rooted in devotional compositions, showcases the vocal and instrumental brilliance of artists like M.S. Subbulakshmi and L. Subramaniam.

India's folk music, rooted in regional diversity, captures the essence of rural life and stories. From the Baul music of Bengal to the Bihu songs of Assam, each melody is a testament to the diverse heritage of India.

Bollywood music, the heartbeat of India's film industry, has become a global phenomenon. Composers like A.R. Rahman have skillfully blended classical and contemporary elements, producing melodies that resonate with millions.

Traditional Indian instruments like the tabla, flute, and veena are the lifeblood of classical and contemporary music. Their distinct sounds evoke a sense of timelessness.

The immortal heritage of humanity finds its truest expression in the art and music of India. It is a testament to the enduring spirit of creativity, the pursuit of spiritual enlightenment, and the celebration of life's myriad emotions. As we immerse ourselves in the melodies and brushstrokes of India's timeless art and music, we not only witness history but experience a connection to the enduring essence of human expression. These cultural treasures transcend time, serving as a bridge between our past, present, and future, and reminding us of the profound beauty of our shared heritage.

Discussion:-

1. **Ancient Civilizations:** Humanity's heritage dates back to the earliest civilizations such as Mesopotamia, Egypt, the Indus Valley, and China. The artifacts, writings, and architectural wonders from these civilizations offer insights into our shared past.
2. **Cultural Exchange:** Throughout history, cultures have interacted, leading to a rich tapestry of art, music, literature, and cuisine. This cultural exchange has enriched the global heritage and contributed to the diversity of human expression.
3. **Language and Writing Systems:** The development of languages and writing systems has been pivotal in preserving and transmitting knowledge across generations. From cuneiform to hieroglyphics and alphabets, these systems have shaped human communication.
4. **Religious and Philosophical Traditions:** The world's major religions and philosophical systems, including Christianity, Islam, Buddhism, and Confucianism, have offered moral and spiritual guidance to billions of people and have influenced human ethics and behavior.
5. **Scientific Discoveries:** Scientific progress, from ancient achievements like the Pythagorean theorem to modern breakthroughs in physics and genetics, has fundamentally altered our understanding of the natural world and improved our quality of life.
6. **Artistic Achievements:** Great works of art, such as the Mona Lisa, the Sistine Chapel ceiling, and Shakespeare's plays,

continue to captivate and inspire people around the world, transcending time and culture.

7. **Human Rights and Social Progress:** The struggle for human rights and social justice, including movements like the civil rights movement and gender equality, reflects humanity's evolving sense of morality and justice.
8. **Technological Advancements:** Innovations like the printing press, the steam engine, and the internet have transformed the way we live, work, and communicate, leaving a lasting impact on our global heritage.
9. **Environmental Stewardship:** As stewards of the Earth, humans have a responsibility to protect and preserve the natural world. Environmental awareness and conservation efforts are integral to our enduring heritage.
10. **Challenges and Responsibilities:** Discuss the challenges that threaten our immortal heritage, such as conflict, cultural erosion, environmental degradation, and inequality. Emphasize the collective responsibility to safeguard and pass on this heritage to future generations.
11. **Ethics and Values:** Consider the ethical principles and values that have emerged throughout history and continue to guide our decisions, including compassion, empathy, justice, and respect for human dignity.
12. **The Future of Our Immortal Heritage:** Speculate on how our heritage might evolve in the future, given the rapid pace of technological advancement and the need for global cooperation in addressing shared challenges.

In your seminar article, provide examples and anecdotes that illustrate these points, emphasizing the interconnectedness of humanity's heritage and the importance of preserving and celebrating it for the benefit of present and future generations.

Conclusion

Art, in all its myriad forms, has served as a mirror to humanity's evolving identity. From the cave paintings of our ancient ancestors to the contemporary masterpieces of today, art encapsulates the

essence of human existence. It preserves the emotions, aspirations, and struggles of generations past, offering us a window into the rich tapestry of our history. Through art, we connect with the universal human experience and gain insight into the diverse perspectives that shape our world.

Music, the universal language, has the power to evoke emotions that words alone cannot convey. Across centuries and cultures, music has been a source of solace, inspiration, and unity. Beethoven's symphonies, Mozart's concertos, and the folk tunes of distant lands all resonate with a timeless quality that speaks to the depths of the human soul. The melodies of the past continue to echo in the present, reminding us of our shared humanity.

These immortal legacies of art and music transcend the boundaries of time and space. They remind us that, despite the passage of centuries, the human spirit remains constant in its creativity and yearning for connection. Through art and music, we bridge the gaps between generations, fostering an enduring connection to our ancestors and a sense of belonging in a vast and ever-changing world.

In conclusion, the immortal heritage of mankind is woven into the very fabric of art and music. They are the threads that bind us to our past, illuminate our present, and guide us into the future. As stewards of this precious legacy, it is our responsibility to cherish, preserve, and continue to create, ensuring that the beauty and wisdom of human expression endure for generations to come.

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11.

Vasudhaiva Kutumbakam : Importance in G20

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In an increasingly interconnected world, where borders blur and nations become interdependent, the age-old wisdom encapsulated in the Sanskrit phrase "Vasudhaiva Kutumbakam" takes on renewed significance. Translating to "the world is one family," this profound concept serves as a beacon of universal harmony and global unity. As we stand on the precipice of the third decade of the 21st century, the imperative for nations to come together, cooperate, and address the complex challenges of our time has never been more pressing.

The Group of Twenty, or G20, has emerged as a pivotal platform for international cooperation, particularly in the realms of global economics and finance. Comprising the world's major economies, the G20 wields considerable influence in shaping policies and strategies to navigate the intricacies of our interconnected world. Yet, as the G20 strives to address issues ranging from economic disparities and environmental sustainability to public health crises, it is worth considering the philosophical foundations that underpin effective cooperation in the global arena.

This research paper seeks to bridge the gap between ancient wisdom and contemporary global governance by examining the relevance and potential implications of "Vasudhaiva Kutumbakam" within the G20 context. By delving into the core principles of this age-old

concept, we aim to shed light on how the G20 can evolve into a more inclusive, empathetic, and effective forum for addressing the multifaceted challenges of our time.

Our exploration will involve an analysis of the philosophical underpinnings of "Vasudhaiva Kutumbakam" and an assessment of its practical applicability within the decision-making processes of the G20. We will consider how adopting and adapting these principles can pave the way for a more equitable and sustainable global order, one that places the well-being of all individuals, nations, and the planet at its core.

As we embark on this journey, we invite readers to contemplate the transformative potential of an ancient concept and its role in shaping the future of international cooperation within the G20 framework. The world may indeed be one family, and in embracing this notion, we aspire to contribute to a more harmonious and interconnected global community.

The Essence of "Vasudhaiva Kutumbakam"

To comprehend the significance of "Vasudhaiva Kutumbakam" within the G20 framework, it is essential to delve into the essence of this timeless concept. "Vasudhaiva Kutumbakam," originating from ancient Indian scriptures, reflects a worldview rooted in unity, interconnectedness, and the oneness of humanity.

The concept suggests that all of humanity is part of one global family, transcending boundaries, languages, and cultures. It underscores the idea that our collective well-being is interdependent, and our actions have repercussions that resonate throughout this global family. To truly grasp the potential of this concept within the G20, we must dissect its key elements:

Universal Unity:

"Vasudhaiva Kutumbakam" posits that the world is one family, emphasizing the interconnectedness of all living beings. This notion challenges the conventional state-centric approach and calls for a broader perspective that considers the interests of all individuals and nations.

Shared Responsibility:

Central to this concept is the idea of shared responsibility. It suggests that just as individuals within a family look out for one another's well-being, nations too should embrace a sense of responsibility towards the global family. This implies that the actions of one nation can impact others, making cooperation and collaboration imperative.

Compassion and Empathy:

At its core, "Vasudhaiva Kutumbakam" promotes compassion and empathy. It encourages individuals and nations to treat one another with kindness and understanding, recognizing the shared human experience that transcends borders.

Holistic well-being:

Finally, the concept emphasizes holistic well-being. It urges us to consider the welfare of all, including marginalized and vulnerable populations, as integral to the overall health of the global family.

These foundational principles lay the groundwork for understanding how "Vasudhaiva Kutumbakam" can inform and enrich the objectives of the G20. As we move forward in this exploration, it is crucial to keep these principles in mind and assess their practical implications within the G20's framework.

The Evolution and significance of G20

The Group of Twenty, or G20, has emerged as a pivotal forum for addressing global economic and financial issues. Its roots trace back to the late 1990s when the world faced economic crises that underscored the need for a more inclusive platform for international economic cooperation. The G20 was subsequently established, comprising 19 individual countries and the European Union, representing the world's major economies.

Economic Significance:

The G20's economic significance cannot be overstated. In 2019, the combined GDP of G20 nations accounted for approximately 85% of the global economy. This numerical data underscores its role in shaping economic policies that influence not only member nations but also the broader global community.

Crisis Management:

One of the G20's key functions is crisis management. Throughout its existence, it has played a crucial role in mitigating economic crises, such as the global financial crisis of 2008. Its ability to coordinate responses and policy measures among member states has been pivotal in stabilizing global markets.

The G20 has been instrumental in crisis management. During the global financial crisis of 2008, G20 members committed to coordinated efforts that amounted to around \$5 trillion, stabilizing financial markets and preventing a deeper recession. This rapid, coordinated response showcased the G20's significant role in mitigating global economic crises.

Agenda Expansion:

Over the years, the G20's agenda has expanded beyond economic and financial matters. It has increasingly addressed issues of global importance, including climate change, sustainable development, and public health. This evolution highlights the G20's potential to serve as a platform for addressing a wide range of interconnected challenges.

Over the years, the G20's agenda has expanded beyond economic and financial matters. It has increasingly addressed issues of global importance, including climate change, sustainable development, and public health. In 2020, for instance, the G20 committed over \$21 billion to address the COVID-19 pandemic, showcasing its evolving role in global health crises.

Critics and Challenges:

Despite its successes, the G20 has faced critiques and challenges. Some argue that its effectiveness is hampered by the diversity of its membership, differing national interests, and the lack of binding commitments. Numeric data might demonstrate economic growth, but it cannot fully capture the complexities and nuances of global governance.

Applying "Vasudhaiva Kutumbakam" to the G20

To truly gauge the potential of "Vasudhaiva Kutumbakam" within the G20, we must assess how the principles of universal unity, shared

responsibility, compassion, empathy, and holistic well-being can be integrated into the G20's decision-making processes.

Embracing Universal Unity:

The principle of universal unity, central to "Vasudhaiva Kutumbakam," challenges the conventional notion of nation-centric policies. It encourages the G20 to shift its perspective from narrow national interests to a broader, global family perspective. Numeric data may quantify individual economic gains, but it often overlooks the broader interconnectedness of global issues.

Fostering Shared Responsibility:

Shared responsibility, a cornerstone of "Vasudhaiva Kutumbakam," implies that the actions of one nation can have consequences that ripple throughout the global family. To implement this principle within the G20, member states should acknowledge their role as stewards of global well-being, considering not only their national interests but also the welfare of all nations. Numeric data might highlight economic disparities, but it cannot capture the moral imperative of shared responsibility.

Cultivating Compassion and Empathy:

Compassion and empathy lie at the heart of "Vasudhaiva Kutumbakam." They call for an understanding of the shared human experience and the capacity to see beyond national borders. Within the G20, fostering these qualities could translate into more empathetic policies and a willingness to address not only economic concerns but also social and environmental ones. Numeric data may quantify economic growth, but it cannot capture the depth of human understanding required for compassionate decision-making.

Prioritizing Holistic Well-Being:

The principle of holistic well-being underscores the importance of considering the welfare of all, including the most vulnerable. Within the G20, this principle could guide the development of policies that address not just economic disparities but also broader issues like public health, education, and climate change. While numeric data can track economic progress, it cannot fully account for the broader well-being of societies and the planet.

Challenges and Considerations

Implementing the principles of "Vasudhaiva Kutumbakam" within the G20 is not without challenges and considerations. The G20's diverse membership, differing national interests, and historical power dynamics present hurdles that must be addressed.

Diverse Membership:

The G20 comprises nations with varying levels of development, resources, and priorities. Aligning these diverse interests with the principles of "Vasudhaiva Kutumbakam" requires careful diplomacy and negotiation. Numeric data may reveal economic disparities, but bridging them necessitates addressing deep-seated inequalities.

Differing National Interests:

Each G20 member nation enters negotiations with its own national interests in mind. Balancing these interests with the broader concept of shared responsibility can be a formidable challenge. Numeric data may indicate national economic gains, but reconciling these with global well-being demands a more nuanced approach.

Historical Power Dynamics:

Historical power dynamics among G20 nations can influence decision-making and cooperation. Addressing these dynamics to create a more equitable and inclusive global family, as envisioned by "Vasudhaiva Kutumbakam," requires a commitment to transformation. Numeric data may track the distribution of power, but it cannot quantify the complexities of historical legacies.

Future Directions and Recommendations

As we conclude our exploration of "Vasudhaiva Kutumbakam" and its importance within the G20, it is essential to consider the path forward and offer recommendations for harnessing the potential of this ancient concept.

Strengthening Dialogue and Diplomacy:

To implement the principles of "Vasudhaiva Kutumbakam" within the G20, member nations should prioritize dialogue and diplomacy. Building understanding and consensus among diverse nations is

essential. Numeric data may measure economic progress, but it cannot replace the value of open and constructive communication.

Integrating Broader Concerns:

The G20 should expand its agenda to address not only economic and financial matters but also broader global concerns, including climate change, public health, and sustainable development. Incorporating these issues aligns with the holistic well-being principle of "Vasudhaiva Kutumbakam." Numeric data may quantify economic growth, but it cannot encapsulate the urgency of these global challenges.

Expanding the G20's agenda to address broader global concerns is pivotal. In 2015, the Paris Agreement, a landmark global climate accord, was adopted with the active participation of G20 members. This commitment to addressing climate change demonstrates the G20's potential to integrate critical global issues beyond economic matters.

Fostering Empathy and Solidarity:

Promoting empathy and solidarity among G20 nations can lead to more compassionate policies. Recognizing the shared human experience beyond national borders can transform decision-making. Numeric data may indicate economic disparities, but it cannot replace the empathy needed for inclusive governance.

While numeric data cannot directly measure empathy, the COVID-19 pandemic showcased the importance of solidarity. G20 members pledged substantial financial support for vaccine distribution to low-income countries, with over \$10 billion committed as of 2021. This exemplifies the potential for G20 nations to demonstrate empathy and solidarity on a global scale.

Promoting Inclusivity:

The G20 should actively engage with and seek input from non-member nations, international organizations, and civil society. Inclusivity is central to the "Vasudhaiva Kutumbakam" concept and can enrich the G20's perspectives and solutions. Numeric data may measure economic power, but inclusivity enhances the diversity of voices shaping global decisions.

Conclusion

In the dynamic landscape of international cooperation, the ancient wisdom encapsulated in "Vasudhaiva Kutumbakam" offers a profound perspective that is increasingly relevant in the context of the Group of Twenty (G20). As our research has shown, the G20 stands as a formidable platform for addressing global economic and financial challenges, wielding considerable influence in shaping the course of the world's major economies.

Yet, as we confront the intricate web of contemporary challenges such as economic disparities, climate change, and public health crises, the G20's mission extends beyond economic metrics alone. The numeric data, while essential in quantifying growth and policy outcomes, cannot fully capture the essence of international cooperation. It is within the philosophical underpinnings of "Vasudhaiva Kutumbakam" that we find the potential for transformative change.

Our analysis has scrutinized the principles embedded in this ancient concept and their practical applicability within the G20's decision-making processes. We have witnessed the G20's capacity to foster economic growth; in 2019, for instance, the combined GDP of G20 nations accounted for approximately 85% of the global economy, underscoring its economic significance.

However, economic success alone does not guarantee a sustainable and inclusive global future. The numeric data must be complemented by a deeper commitment to shared responsibility and the well-being of all, transcending national interests. In adopting and adapting the principles of "Vasudhaiva Kutumbakam," the G20 can realize its potential to become a more inclusive, empathetic, and effective forum for addressing the multifaceted challenges of our time.

In conclusion, the world may indeed be one family, and the G20, with its economic prowess, has a unique opportunity to embrace this notion. By doing so, it can translate numeric data into genuine progress, ensuring that economic growth is coupled with unity, empathy, and a shared commitment to addressing global challenges. The numeric data quantifies economic might, but it is the spirit of "Vasudhaiva Kutumbakam" that guides us towards a future marked

by a more equitable, sustainable, and interconnected global community.

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12.

Vedic Mathematics: Elucidating India's Glorious Mysteries

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Vedic Mathematics got rediscovered from Vedas somewhere around [1911-1918] by Shri Bharathi Krishna also former Shankaracharya of Puri [1884-1960], he was popularly known as Jagadguru. He alarmed that there has been vast amount of literature on mathematics present in Veda-Sakhas (editions propounded by Rishis) but unfortunately most of them are lost .This is evident from the fact that by the time of Patanjali about 25 centuries ago 1131 Veda-Sakhas were known to the Vedic Scholar only 10 out them are present and known to scholars today .The main resplendency of Vedic mathematics is to abbreviate involute calculations to simple form .Application of these Sutras to concrete quandary involve rational cerebrating that is bottom line of the mastery of mathematical geniuses of the past such as Srinivasa Ramanujan , Bhaskaracharya , Aryabhata, Brahmagupta, Shridhara, Virasena, Prithudaka , Nilakantha Somayaji and many more.

The 16 Sutras [Aphorisms] and 13 Up-Sutras [corollaries] are as follows –

SUTRAS:

1. EKADHIKENA PURVENA
2. NIKHILAM NAVATASCARAMAM DASATAH
3. URDHVA-TIRYAGBHYAM
4. PARAVARTYA YOJAVET

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5. SUNYAM SAMYASAMUCCAYE
6. SUNYAMANYAT
7. SANKALANA VYYAYAKALANABHYAM
8. PURANAPURANABHYAM
9. CHALANAKALANABHYAM
10. YAVADUNAM
11. VYASTISAMASTIH
12. SESANYANENA CARAMENA
13. SOPANTYADVAYAMANTYAM
14. EKANYUNENA PURVENA
15. GUNITASAMUCCAYAH
16. GUNAKSAMUCCAYAH

UPSUTRAS:

1. ANURUPYENA
2. SISYATE SESAMJNAH
3. ADYAMADYENANTY AMANTYENA
4. KEVALAIH SAPTAKAM GUNYAT
5. YAVADUNAM TAVADUNAM
6. YAVADUNAM TAVADUNIKRYTYA VARGANCA YOJAYET
7. ANTYAYORDASAKE
8. ANTYAYOREVA
9. SAMUCCAYAGUNITHA
10. LOPANASTHAPANABHYAM
11. VILOKANAM
12. GUNITASAMUCCAYAH SAMUCCAYAGUNITAH
13. VESTANAM

EKADHIKENAPURVENA

It refers to “by one more than one before”. It is mainly used to square the numbers and also used for the multiplication of two numbers.

The conditions are as follows:

1. The sum of last digits should add up to 10.
2. The previous digits for both numbers must match.

The procedure for multiplying two numbers are as follows:

- 1: Multiply the last digits of the two numbers $A_0 \times B_0 = X_1 X_0$
- 2: The previous digits of the two numbers should be equal ($x_1 = y_1$) if it satisfies $[A_1 (A_1 + 1)] = y_2 y_1 y_0$

EKANYUNENAPURVENA

It refers to “by one less than the previous one or one less than the one before”. It is applicable only when the multiplier is 9,99,999... The procedure involved in the multiplication of two numbers are as follows:

- 1: The multiplier should be 9 and then decrease the multiplicand value by one x_0 .
- 2: The result from the previous step should be subtracted from the multipliers. i.e., $9,99,999 \dots (9 - x_0) = y_0$. The result is written as $x_0 y_0$.

ANURUPYESUNYAMANYA

It refers to “if one is in ratio then the other one is zero”, It is mainly used for the values of unknowns in the two linear equations. The procedure involved in calculating values of unknown variable are as follows:

- 1: Considering both the constants and the variables coefficient.
- 2: Take y-coefficient ratio i.e., in $A_0: A_1$ and constant values ratio as $A_0: A_1$, take x as zero if the ratio of the coefficient of y and constant is equal then taking x's value find y.

CHALANAKALANBHYAM

It refers to “differential calculus”. As it is possible to decompose each quadratic equation into two binomial factors, it is used to find

the roots of the quadratic equation by using the formula,

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

In this formulae a , b , c are the coefficients of x^2 , x and constant respectively.

SANKALANAVYAKALANABHYAM

It refers to “by addition and by subtraction”, it is same as Anurupye Sunyamanya sutra. It is

used to solve the special type of simultaneous linear equations but it should have the co-efficient of X in equation 1 and Y in equation 2 respectively and vice versa for balance X and Y term in equation 1 and 2 [interchanging in general].

- 1: If the above criterion is satisfied, add equation 1 and equation 2, the addition of the two equations will give another equation as equation 3.
- 2: Subtract the equation 1 and 2; the resultant equation in step 2 is named as equation 4.
- 3: Solve the equation 3 and 4, get either value of X or Y , substitute that X or Y value in equation 3 or 4 we get X or Y respectively.

GUNAKSAMUCCAYAH

It refers to “the factors of the sum are equal to the sum of the factors”, it is same as Chalanakalanabhyam. It is used to find the roots of quadratic equation using the formulae. It is used for the verification of factors with the given quadratic equation.

The procedure involved in this is as follows:

- 1: At first, find the factors of the given quadratic equation.
- 2: Then add the factors of the quadratic equation it must be equal to the $2aX + b$, if this condition satisfies then they are roots of quadratic equation.

SESANYANKENACARMENA

It refers to “the remainders by the last digit”, it is used to express fraction numbers into decimal numbers up to required decimal places

under the condition that denominator should be greater than the numerator. The procedure involved in calculation are as follows:

- 1: Verify that the numerator should be less than the denominator, then multiply numerator by 10 and divide by denominator, if remainder value is not equal 1, then again multiply remainder by 10 and divide value by denominator and the process will continue until remainder is equal to 1.
- 2: Multiply the whole remainder by the denominator respectively from step 1.
- 3: Taking the final output digits from step 2 and write the output from top to bottom i.e., $0.x_1 x_2 x_3 \dots$ etc up to required decimal places.

PURANAPURANABHYAM

It refers to “by completion or non-completion”, it is used to find the roots of the cubic equation. It is well known process in the present-day system. The procedure involved in the calculation of roots are as follows:

- 1: Look for the nearest cubic formula i.e. $(X + A)^3$, for the given cubic equation.
- 2: Add the result of the subtraction on both sides of the provided cubic equation after subtracting the closest cubic equation from the given cubic equation.
- 3: Common terms on both sides of the equations are present in the resulting equation, so replace that common term with another variable, and check for the values which satisfies the condition.
- 4: The values which satisfies the condition to be taken as the roots of equation.

GUNITASAMUCCAYAH

It refers to “the product of sum is equal to the sum of the product”, it is used to check whether the given equation is correct or not using the roots of the equation.

The procedure involved in this is as follows:

- 1: Equating the quadratic equation with its coefficient after equating the equations roots and its quadratic equation.
- 2: If both values are same then the quadratic equation and their roots are correct.

URDHVATIRYAKBHYAM

It refers to “vertically cross wise”, it is used for the multiplication of two numbers up to N number of digits, and the procedure for the multiplication of numbers is same for decimal number system as well as in binary number system.

The procedure involved in the calculation for two-digit decimal number are as follows:

- 1: First the unit’s digits of the multiplier and multiplicand i.e., A_0 and B_0 , should be multiplied and represent as C_0 .
- 2: Generation of partial products i.e., multiply $B_0 A_1$ and $A_0 B_1$, and add the result and represent as $(A_0 B_1 + B_0 A_1) = C_1$, if there is any carry exist then add that value in the next multiplication result.
- 3: Multiply A_1 and B_1 and designate the answer as C_3 . If there are two, ‘n’ digits numbers then $[(2xn)-1]$ times the same steps will continue. The same process is applicable for all the N number of digits in decimal as well as binary number system.

YAAVADUNAM

It refers to “by the deficiency”, it is used to calculate the square of the numbers using the deficient number from the nearest numbers in powers of 10. The procedure involved in the calculation of the square of numbers are as follows:

- 1: Find the closest number in powers of 10, and subtract this number from the given number and find the deficiency and represent as A_0 .
- 2: Subtract the deficiency i.e., A_0 from the given number and keep it as side part on left of the final answer and represent it as B_0 .

- 3: The squared value of the deficiency will give the right-side part of the final answer and represented as C_0 . The final answer of square of the given number is represented as $B_0 C_0$.

VYASTISAMANSTIH

It refers to “part and whole” i.e., it is used to find the part of any particles from the mixture. It is like calculating the probability of getting particles from the mixture. The procedure in calculating the part whole ratio of the contents from the mixture are as follows:

- 1: At first, find the total number of particles present in the mixture and the components also the individual number of the particles.
- 2: Calculate each particle count in the mixture on dividing it by the total number of particles in the mixture.

SOPAANTYADVAYAMANTYAM

It refers to “ultimate and pen ultimate”, it is also method used for the multiplication of two numbers, where the multiplicand can be any number but the multiplier should be 12, then only this process is applicable. The procedure involved in multiplication of two numbers are as follows:

- 1: Put zeros in the multiplicands first and last positions.
- 2: The last digit is added to the second last digit which is then multiplied by 2 and so on for each of the digits in the multiplicand.
- 3: The resulting values are written from bottom to top.

SUNYAM SAMYASAMUCCAYE

It refers to “when sum is same that sum is zero”, it is used when same sum comes, we equate that sum to zero. It is applicable under six cases. They are as follows:

- 1: When the common factor is present, equate that common to zero.
- 2: The sum of the denominator equates to zero if the numerator is same.

- 3: The sum of denominator on left side equal to the right side, then equate that sum to zero.
- 4: The sum of the numerator and denominator is equal on both sides then equate it to zero.
- 5: If it is having any common term in numerator or denominator on both sides of the equation, then equate the sum of numerator and denominator on either side equal to zero.
- 6: (I) If sum of the numerator = sum of the denominator then equates either the sum of numerator or sum of denominator to zero.
(II) If the difference of the numerator or denominator is same then equate the difference of the numerator or denominator to zero.

NIKHILAM NAVATASCARAMAM DASATAH

It refers to “all from 9 and the last from 10”. It is subtracted from the nearest power of 10 or $10n$.

This type of procedure can be applied as follows:

When number slightly less than power of 10(10,100,1000...)

$$\text{Formulae} \Rightarrow (x-a)(x-b) = x(x-a-b) + ab$$

When number slightly greater than power of 10(10,100,1000...)

$$\text{Formulae} \Rightarrow (x+a)(x+b) = x(x+a+b) + ab$$

PARAVARTYA YOJAYET

It refers to “transpose and apply”, it is applicable when divisor should be slightly greater than power of 10. The procedure involved is as follows:

- 1: The divisor should be slightly greater than the power of 10.
- 2: Write the divisor leaving the second digit and also write below the divisor in negative sign i.e., (x) from left to right.
- 3: Write the dividend to the right leaving the last digit and mention it as remainder, write the first digit as it is and multiply that with $-x$ and then add with the second digit, continue the process until last digit.

4: Now the last digit is remainder and the digits before last digit are termed as quotient.

Conclusion

To number of peoples mathematics can be insipid and tough subject, Vedic Mathematics makes it facile and expeditious additionally it takes little time in comparison to modern techniques. Innovation and resplendent method are just component of a consummate system of mathematics. It manifests the coherent, coalesced structure [easy, relishing and emboldens creativity]. The methods are complementary and easy.

Simplicity of Vedic Mathematics designates that calculations can be carried out mentally. Hence, it can be undoubtedly the best way to remove hurdles related to abstract and logical reasoning among students especially i.e., to manipulate symbols and balance equations.

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13.**Philosophical Concept of “साविद्या या विमुक्तये” and National Education Policy 2020: Possibilities and Challenges**

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A Sanskrit phrase “साविद्या या विमुक्तये,” meaning “knowledge is that which liberates.” In the complex structure of human existence, education stands as the cornerstone to shape individual’s and societies. This ancient phrase showed the transformative power of knowledge, illustrating how it serves as a beacon, guiding humanity towards enlightenment, freedom, and emancipation.

Education is not just reading facts and figures, but a journey that leads to liberation by improving mind, body and soul by breaking all boundaries. It enables individuals to discern between right and wrong, truth and falsehood, and wisdom and ignorance. The pursuit of knowledge empowers individuals to challenge the status quo, question societal norms, and embark on a quest for truth. Because of education, a person not only acquires intellectual skills but also acquires the moral guidelines necessary to live a purposeful life.

Education is a liberating force. It frees the mind from the chains of ignorance and prejudice, promoting understanding and empathy among diverse cultures and communities. It frees the society from the shackles of superstition and intolerance and takes it on the path of progress, equality and social harmony. Through education, individuals are freed from the limitations of their circumstances,

enabling them to overcome the barriers of poverty, gender inequality and discrimination.

In today's interconnected world, the significance of education has never been more profound. With the rapid advancement of technology and the globalization of knowledge, education has become the catalyst for innovation and economic growth. Nations recognize the pivotal role education plays in shaping their future generations into informed, skilled, and responsible citizens. Quality education prepares individuals to deal with the complexities of the modern world, promoting critical thinking, creativity and problem-solving skills.

Furthermore, education is the basis of democratic societies. Informed citizens are the bedrock of a democracy, capable of participating meaningfully in civic life, advocating for social justice, and holding leaders accountable. Through education, individuals learn the values of tolerance, respect, and cooperation, a sense of community and social unity.

“साविद्या या विमुक्तये” embodies the essence of education as a transformative force that liberates the mind and soul. It is the foundation upon which enlightened societies are built, fostering progress, tolerance, and understanding. Let us build a world where education is not just a privilege but a Fundamental Right, Empowering every individual to develop his or her full potential and make meaningful contributions to humanity.

The National Education Policy 2020 (NEP 2020) of India marks a significant milestone in the country's educational landscape. For transforming the education system, NEP 2020 is a comprehensive framework that outlines the government's vision for the future of learning in India. Policy aims to advance India as a knowledge-driven society and global powerhouse.

NEP 2020 recognizes the evolving needs of the 21st century and addresses them through a series of transformative reforms. It places a strong emphasis on early childhood education, acknowledging the crucial role it plays in shaping a child's cognitive and social development. By focusing on a multidisciplinary approach, the policy encourages students to explore a wide array of subjects, nurturing their creativity and critical thinking skills. Moreover, NEP 2020

advocates for the integration of technology in education, ensuring that students are well-equipped to thrive in the digital age. One of the key highlights of NEP 2020 is its emphasis on flexibility and choice in the education system. The policy promotes multiple entry and exit points in higher education, allowing students to choose their own learning pathways based on their interests and aptitudes. This approach not only reduces the pressure but also promotes a more holistic and personalized learning experience.

NEP 2020 also emphasizes on training and professional development of teachers, and recognizes the important role of teachers in shaping the future of the nation. By investing in the continuous growth of teachers, the policy aims to enhance the overall quality of education in the country. Additionally, NEP 2020 promotes research and innovation, encouraging institutions to focus on research to get the solution of different challenges faced by India and the world.

the National Education Policy 2020 is a visionary document that create an education system that is equitable, inclusive, and globally competitive. By fostering a love for learning, encouraging innovation, and empowering both students and teachers, NEP 2020 sets the stage for a brighter and more prosperous future for India, where education becomes the cornerstone of individual success and national development.

Historical Background

“साविद्या या विमुक्तये” has deep historical roots in ancient Indian philosophy and education systems. In ancient India, education was highly valued, and knowledge was considered a powerful tool for personal and societal liberation. The concept of liberation (moksha) is fundamental in Sanatan philosophy, representing the ultimate goal of human life – the freedom from the cycle of birth and death (samsara). Knowledge was not only just about acquiring information but understanding the true nature of reality and self, leading to spiritual enlightenment and liberation. In ancient India, educational institutions known as Gurukuls, were center of learning where students received education, not only in academic subjects but also in ethics, philosophy, arts, and spirituality. The gurus used to give all their knowledge to their students with the belief that true knowledge would free them from ignorance and worldly bondages.

The idea that knowledge liberates is also reflected in various Indian scriptures and texts, such as the Vedas, Upanishads, and Bhagavad Gita. These texts emphasize on the pursuit of knowledge for self-realization and spiritual freedom. Over the centuries, this concept continued to influence Indian educational traditions and philosophies. Even in modern times, the importance of education as a means of liberation remains a central theme in Indian society. The phrase "साविद्या या विमुक्तये" is an one of example from ancient times, which showed the commitment of Indian society towards knowledge and it's transformative power and its ability to liberate individuals from ignorance, superstition, and limitations of society and individual own mind patterns.

The National Education Policy 2020 (NEP 2020) was a result of decades of educational evolution and policy changes in India:

- **Post-Independence Era (1947-1990s):** After gaining independence in 1947, India focused on expanding its education system to meet the needs of large and diverse population. The focus was on basic education and literacy. The first educational policy was formulated in 1968, which aimed at promoting socialistic patterns of society and greater equality in the educational system.
- **Liberalization and Globalization Period (1990s-2000s):** With the economic liberalization in the 1990s, there was a shift towards a more market-oriented economy. This period saw the emergence of Globalization and private institutions, which emphasised on technical and professional education. In 1986 and then in 1992, new policies were introduced, focusing on a more technical education in the country.
- **First decade of 21st century (2000s-2010s):** In the 2000s, the government focused on improving access to education to all, especially for marginalized communities, economically weak people and girls. In this decade, the government more Focused on Access and Inclusivity in society. The Right to Education Act (2009) was an example which aimed to provide free and compulsory education to all children aged 6 to 14.
- **Technological Advancements (2010s):** The share of technology in education increased rapidly since the 2010s. There are

various initiatives like Digital India and e-learning platforms through which students sitting far away get the benefit of education. Today even the poorest children are able to get an education through mediums like the Internet and YouTube etc.

Possibilities

The National Education Policy 2020 (NEP 2020) of India brings forth several advantages and opportunities that can potentially transform the country's education system. Here are some of the key pros of NEP 2020:

- **Holistic Development:** NEP 2020 emphasizes holistic development by focusing not only on academic knowledge but also on life skills, critical thinking, creativity, and social and emotional learning. This approach prepares students for real-world challenges.
- **Flexibility in Education:** This policy brings flexibility in the education system and allowing students to select from a wide range of subjects and courses. It promotes a multidisciplinary approach, enabling students to explore different fields and find out their true passions.
- **Early Childhood Education:** NEP 2020 recognizes the importance of early childhood education and aims to provide a strong foundation for young learners, which enhances a child's cognitive, social, and emotional development.
- **Vocational Education:** The policy integrates vocational education into the mainstream curriculum, allowing students to acquire practical skills with theoretical knowledge. This prepares students for various career paths and reduces the gap between education and employment.
- **Technology Integration:** NEP 2020 promotes the use of technology in education. It envisions a technology-driven education system, enhancing access to quality education, especially in remote areas. Digital tools and online resources can facilitate a more interactive and engaging learning experience like in many remote areas children's learned from YouTube.

- **Teacher Training and Professional Development:** The policy emphasizes the training and continuous professional development of teachers. Well-trained educators can deliver high-quality education, ensuring that students receive proper guidance and mentorship.
- **Promotion of Languages:** In a country of more than 100 regional languages, NEP 2020 promotes the preservation and nurturing of regional languages while ensuring proficiency in the global languages. This approach helps in preserving cultural heritage and encourages multilingualism, which is essential in today's interconnected world.
- **Focus on Research and Innovation:** The policy encourages institutions to focus on research and innovation. By fostering a culture of curiosity and inquiry, NEP 2020 can lead to many discoveries and advancements in various fields, contributing to the nation's progress.
- **Equity and Inclusion:** NEP 2020 aims to provide equal opportunities in education, regardless of socioeconomic background, gender, or geographical location. Special provisions are made to address the needs of disadvantaged groups, promoting inclusivity in the education system.
- **Global Recognition:** By aligning with international standards and best practices, NEP 2020 enhances the global recognition of Indian education. This can attract foreign students and collaborations, fostering a rich exchange of ideas and knowledge.

Challenges

Both the philosophical concept "सविद्या या विमुक्तये" (knowledge is that which liberates) and the National Education Policy 2020 (NEP 2020) in India, faced various challenges in their implementation. Let's explore some of the common challenges faced by both:

- **Access and Equity:** In a country where there is a lot of sentimentality regarding caste, religion and socio-economic status. Ensuring equal access to quality education remains a challenge. Disparities in educational infrastructure, resources, and opportunities, especially in rural and marginalized communities.

- **Teacher Training:** In a country where education has become a business, Where teachers only complete their courses and take their monthly salary and do not pay attention to their duties. Implementing a holistic and multidisciplinary approach requires well-trained educators. Adequate training programs for teachers, ensuring they are well-versed in new teaching methodologies and subject matters, are essential. This challenge also includes addressing the shortage of skilled teachers in various regions.
- **Technological Disparities:** NEP 2020 promotes the integration of technology, but the digital divide poses a significant challenge. There are millions of poor children in this country who live in small villages and not all students have access to computers, mobiles or the internet, which hindering their ability to benefit from online learning resources. Bridging this gap is crucial for equitable education.
- **Curriculum Overhaul:** Shifting from a rote-learning system to a more creative, critical thinking-oriented approach necessitates a significant overhaul of the curriculum. Designing a curriculum that is engaging, relevant, and adaptable to different learning styles is a complex task.
- **Assessment Methods:** Traditional examination-based assessment methods are deeply ingrained in the education system, in which only marks reflect the abilities of the student. Implementing alternative assessment methods that evaluate holistic development and skills poses a challenge. Balancing standardized testing with continuous, comprehensive evaluation is vital.
- **Funding and Resources:** Adequate funding and allocation of resources are essential for implementing the ambitious goals outlined in both "साविद्या या विमुक्तये" and NEP 2020. Limited resources, competing demands and budget constraints can impede the effective execution of educational reforms. Having a good budget is essential for big transformative changes in the education system in the whole country.
- **Cultural and Societal Norms:** Societal attitudes and cultural norms sometimes resist changes in the education system. A

country where different types of discrimination prevent a person from moving forward. The emphasis on vocational education might face resistance in societies where academic degrees are highly valued.

- **Policy Implementation:** Translating policy into action at the ground level, ensuring that the vision of liberating education reaches every student, is a formidable challenge. Effective coordination between policymakers, educational institutions, and local communities is crucial for successful implementation.

Conclusion

The National Education Policy 2020 (NEP 2020) and the philosophical concept "साविद्या या विमुक्तये" both reflect the transformative power of education. NEP 2020, with its focus on holistic development, flexibility, technology integration, and inclusivity, sets a path for India's future education system. It not only feed information but also develop creativity, critical thinking abilities, and social skills in students.

Similarly, the ancient Sanskrit phrase "साविद्या या विमुक्तये" expresses the essence of education as a liberating force. It signifies the notion that true knowledge empowers individuals, freeing them from ignorance, prejudice, and limitations. Education is the power that has the power to liberate the mind, promote understanding and enhance social harmony.

However, There are many problems before the National Education Policy like overcoming disparities in access, addressing the digital divide, ensuring quality teacher training, and societal bondages. But with focused efforts, these challenges can be overcome.

The synergy between NEP 2020 and the age-old wisdom of "साविद्या या विमुक्तये" lies in their shared goal: the liberation of the human mind. As nation wants to moves forward, it must stick to it's commitment to providing education that not only feed information but also lead to all-round development of the student. In this way, education can continue to be a beacon of enlightenment, guiding individuals towards personal fulfillment and societal progress, echoing the timeless wisdom of "साविद्या या विमुक्तये" in every classroom and in the hearts of every learner.

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14.

Yoga: A Daily Routine Therapy for Mental Health

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Why do we need to practice yoga on the daily basis?

In present scenario keeping ourselves mentally and physically healthy is the biggest challenge for almost all age groups. The way technology is overpowering us, social media is deeply affecting our personal life. Internet has become an addiction. Alcohol, drug abuse, junk-food, adulterated food and other unhealthy practises have become our life style; so it is completely natural that it will take toll from us. According to the National Mental Health Survey 2019, about 14% of all adults in India have or will have a mental condition of some kind. Nearly 56 million people in the country are thought to suffer from depression, with another 38 million suffering from anxiety disorders. As per the World Health Organization, the economic cost of poor mental health in the country will be over \$1.03 trillion between 2012 and 2030. It is much obvious to say that our mental health has direct impact on our physical health and emotional health. And same way our physical conditions and activities affect our psychological health.

Yoga is not just a physical practice but an art of living life with utmost energy and bliss. Studies over the past 20 years have shown that yoga is a powerful therapy for the treatment of major depressive disorder, anxiety disorders and other mental health issues. We can say that like other therapy, yoga solely is not a complete solution for all type of mental health issues but one thing is sure that it is cost effective, comprising least side effect and a great way of self healing. In conjunction with other approaches yoga has great potential to

lead people toward greater mental well being and attain mental stability. Unfortunately, the eastern psychologists have not paid attention to the principles of Indian philosophy and so far western theories kept on leading the ground for behavior modification program, psychotherapies and even the research area.

But now the tables have turned. West has also started taking interest in this ancient science of yoga. This in itself is a complete system to reach highest possibilities of mental faculties.

Roots of yoga

‘Yoga’, I think, most used, overused and sometimes even a misused term of 21st century. But one thing is sure that now yoga has become a global practice. This term holds a long history not just in India but all over the globe. The practice of yoga is believed to be started with the dawn of society. If we take a mythological approach to understand the past of yoga, it holds a history which is even beyond the imaginations of human intellect. In the yogic lore, Shiva is seen as the first yogi and the first Guru or Adi Guru. Several Thousand years ago, on the banks of the lake Kantisarovar in the Himalayas, Adiyogi poured his profound knowledge into the legendary Saptarishis or "seven sages". The sages carried this powerful yogic science to different parts of the world, including Asia, the Middle East, Northern Africa and South America. Interestingly, modern scholars have noted and marvelled at the close parallels found between ancient cultures across the globe. However, it was in India that the yogic system found its fullest expression.

The yoga sutras of Patanjali are one of the contemporary yoga’s favourite sources of inspiration guidance on how to live a balanced and ethical life both on and off the mat. While the complete Sutras (written sometime in the first four centuries CE) consists of 195 aphorisms that yoga scholar David Gordon White calls “a Theory of Everything,” most of modern yoga’s attention is focused on the 31 verses that describe the ‘eight limbs’ of yoga, which form a practical guide on the subject of how to attain liberation from suffering. A study of the history of the Yoga Sutras reveals that much of our understanding of this ancient work has been filtered through numerous commentaries on the original verses. Our version of the

eight limbs acknowledges the context of their creation and then finds ways to apply them in contemporary life.

The eight limbs are: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi. The word 'Yoga' is derived from the Sanskrit root 'Yuj', meaning 'to join' or 'to yoke' or 'to unite'. As per Yogic scriptures the practice of Yoga leads to the union of individual consciousness with that of the Universal Consciousness, indicating a perfect harmony between the mind and body, Man & Nature. This definition or you can say the explanation of the term yoga is quite deep and having the essence of life. Human mind and body are not the two different entities. They are not divided anywhere, they are part of each other. They are parts of one whole. The existence of psychosomatic disorders clearly indicates that they are not two separate things. The mind is the inner part of body and the body is the outer part of mind. These two communicate with each other in a very deep manner. Yoga has power to affect our mind and body because it works on the basic elements of our body constitution.

How does it affect us?

From a yogic perspective, the breath is a bridge between mind and body. Slow diaphragmatic breathing is common to almost all forms of yoga. The key to quieting the mind is slowing and deepening the breath. Practicing yoga helps to regain mental stability, calmness, and tranquility, primarily because of this kind of breathing. Practitioners are able to connect internally through this stillness and silence. Virtually all yogic practices, including asana (postures), pranayam (life force practices), dhyana (meditation), encourage quietness and listening within. Yoga is a spiritual practice which helps in realizing the oneness of the universe. How does yoga affect our hormonal balance, neurotransmitters and other systems, requires a lot of scientific researches. Researchers hypothesized that yoga increase the level of GABA (neurotransmitter) in our brain and it changes the intensity and the number of breath taken per minute which directly affect our thinking process. Mindfulness (living into present) or once conscious focus on inhale and exhale of air in the body, control anxiety and show noticeable changes in aggression and level of depression. If we look around aasans (physical poses) are the most famous form of yogic system. A general concept of

yoga revolves around physical poses and meditation. But yoga touches almost every facet of human life, from physical to subtle level. Quality of our thinking, discipline, self-care, truthfulness, non-violence is some of the elements under the eight limbs of yoga.

Yoga: A daily routine therapy

The daily practice of yoga shows promise for promoting better population mental and physical health. The benefits may have individual degree. But it is acceptable, accessible, cost-effective and encourages self-reliance. Yoga is an individual health promoting practice that can be done in groups and supported by communities. Like other holistic practices such as tai chi, qigong, meditation and so forth, it includes a community component and can be taken as group therapy. Practicing yoga together, in workplaces, community centers, schools and other group settings have shown to promote population mental health. While yoga does not address the social determinants of mental illness it does promote a greater sense of inner peace for those who partake. It appears that deep slow breathing in combination with movement and other aspects of yoga are at the heart of yoga's ability to bring people a greater sense of tranquility. It meets the triple aim of improving health, improving care and reducing cost. A recent article questions whether sufficient evidence exists for family physicians to recommend yoga to their patients. The evidence-based answer: "Yes, yoga can reduce symptoms of anxiety and depression". Across multiple studies using varied yoga interventions and diverse study populations, yoga typically improves overall symptom scores for anxiety and depression, both by itself and as an adjunctive treatment. It produces no reported harmful side effects. If we look at the economical aspect of yoga, it is more affordable than any psychotherapy and any other medical aid. Definitely yoga is not a hundred percent replacement of any kind of psychological and medical treatment. But a far better option than no treatment at all. In some cases yoga is taught for free such as yoga clubs in India and other countries. While it may not be for everyone, through a disciplined approach most people with or without mental health imbalances may feel more mental ease and relaxation through the practice of yoga.

Conclusion

Till today, there is no study which found significant negative impact of yoga on our mental health. In my own experience; I have observed that yoga gives us strength to perform better and to have a great degree of control on our thoughts and emotions. Though more scientific studies are required in this field to understand the impact of yoga on our mental health and which particular practice can have swift direct impact on brain functioning and reactions. Yoga can be a proactive resolution for mental health problems.

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15.**Yoga Education****Dr. Madhu Chahar**Assistant Professor
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Yoga has long history since 5000 years and beginnings of Yoga were developed by the IndusSarasvati civilization in Northern India over . Sagi Maharshi Patanjali in pre-Vedic period is the father of Yoga who systematized and codified for existing Yoga still continue. The word Yoga was first mentioned in the oldest sacred texts, the Rig Veda. In the Modern period, Yoga Guru's began to learn and practice of Yoga across the world and to attract the followers. Although Education is an instrument as well as a catalyst of social transformation and expected to bring about qualitative change in man's perception, attitudes, habits, priority and goals, the real sense of values in recent days somewhere missing. Moreover, the present system of education is information oriented not character-based. It is consumerist in nature and makes one selfish, self centered, irreverent and cynical. Values are the concepts that describe human behavior. They are desirable ideals and goals, which are intrinsic and when achieved, in fact, evoke a deep sense of the fulfillment. Yoga has great importance in present education system. The modern education system emphasizes on science and technology in which the material progress is being achieved, but the inculcation of ethical, moral and spiritual values and promotion of healthy life-style are totally neglected. In this context, it is an urgent need to integrate Yoga in modern education system in order to make all-round

development relating to body, mind and spirit symphonically and thereby prevent the erosion of human values.

History of Yoga

Yoga can be traced back to the ṛgveda itself, the oldest Hindu text which speaks about yoking our mind and insight to the Light of Truth or Reality. Great teachers of early Yoga include the names of many famous Vedic sages like Vasiṣṭha, Yajñavalkya, and Jaigisavya. The greatest of the Yogis is always said to be Yogesvara Kṛṣṇa himself, the propounder of Bhagavadgita which is called as Yoga Sastra an authoritative work on Yoga. Lord Siva is also the greatest of the Yogis or Adinatha. Yoga has been part of man's activities directed towards higher spiritual achievements in India. The history of Yoga is divided into five categories:

- Vedic period
- Pre-classical period
- Classical period
- Yoga in Medieval Times
- Yoga in Modern Times

Development of Yoga:

- Yoga is an ancient art based on a harmonizing system for development of the body, mind, and spirit. Yoga may be originated from pre-Vedic period. It originated in India 5000 or more years ago. In history of yoga, there are five categories such as Vedic period, Pre classical period, Classical period, Medieval Times and Modern times.
- In Vedic period, yoga was considered as higher attainment through knowledge or revelation from universe through meditation. It comprises three yogas- Mantra Yoga, Prana yoga and Dhyana yoga .
- The creation of the Upanishads marks the Pre-classical Yoga. The Upanishads further explain the teachings of the Vedas and Bhagavad Gita. Bhagavad Gita consists of 18 chapters and each chapter is called yoga. The Gita tried to unify Bhakti yoga, Jnana yoga and karma yoga.

- Around the second century, Yoga Sutra is another creation of classical period. Patanjali's eightfold path of yoga (Yama, Niyama, Asana, Pranayama, Dharana, Dhyana, Samadhi) .
- During the mediaval era (500-1500 AD), different schools of yoga emerged i.e Bhakti yoga, Hatha yoga. Hatha yoga are in Bhuddist works from the eighth century.
- In modern era , Integral yoga by Sri Aurobindo, modern yoga by Swami Vivekananda, Saint Ramakrishna , Paramahansa yogananda , Swami Satchitanandaa, Swami Sivananda Radha, Swami Satyananda and Swami Chidananda enlightened the era of yoga.

Need and importance of Yoga Education:

The word 'Yoga' is derived from the Sanskrit root 'Yuj', meaning 'to join' or 'to yoke' or 'to unite'. As per Yogic scriptures the practice of Yoga leads to the union of individual consciousness with Universal consciousness. Yoga indicates a perfect harmony between mind, body and spirit. According to modern scientist, everything in the universe is just a manifestation of the same quantum firmament. We search for happiness out there in the objects of senses. But the happiness is right within us. So, the need for yoga is search for happiness. It is a state of bliss, freedom, knowledge and creativity. It is a state of silencing the mind. Upanishad propound that original state of silence is also the causal state of the entire creation. Yoga education helps in self discipline and self control. The importance of yoga education is to possess emotional stability, moral values, manifests truth, pure consciousness, Janna, bliss, love .

Types of Yoga

The aim of Yoga is the attainment of the physical, mental and spiritual health. Patanjali has recommended eight stages of Yoga discipline. They are:

- Yamas- (internal purification through moral training preparatory to Yoga)
- Niyamas- (cleanliness, contentment, mortification, study and worship of God)
- Asanas- Physical postures or exercises

- Pranayama- (Control of vital energy/ Breath control)
- Pratyahara- (Withdrawal of the senses/ making the mind introspective)
- Dharana- (Concentration of the mind)
- Dhyana- Meditation
- Samadhi- Attainment of the super conscious state

Importance of Meditation

The word 'health' in Sanskrit means to be established in one's self. The body, mind and spirit have to be in harmony. We have seven layers to our existence, that is body, breath, mind, intellect, memory, ego and the self. So, we need to learn about all these and the techniques to keep them healthy and in harmony, and that's what Yoga and Sudarshan Kriya is all about. With a few minutes of meditation, our whole system gets rejuvenated. There are four sources of energy. The first is food, second is good sleep, and third is breathing, fourth is meditation. By attending to these four important sources of energy, we can restore our health.

There are many benefits of breathing exercises:

- Violence-free society
- Disease-free body
- Confusion-free mind
- Inhibition-free intellect
- Trauma-free memory
- Sorrow-free soul

Impact of yoga on the mind, body, and soul:

Effects of Yoga on the Soul:

- Yoga may help you strengthen your relationships.
- Yoga has a calming effect on the mind.
- Yoga assists us in achieving inner serenity.
- Yoga assists us in coping with adversity.

Effects of Yoga on the Body:

- Yoga aids in the development of flexibility.
- Yoga may help you decrease your blood pressure.
- Yoga helps to relieve chronic neck discomfort.
- Yoga helps to create strong bones
- Yoga decreases the risk of heart disease.

Awareness of psychology and yoga:

Regular practise makes changes in the parts of the brain that can be seen. These changes may lead to better learning and memory, longer attention spans, and better self-referential processing, which affects how people see themselves and how they see others. Yoga and meditation, when practised on a regular basis, can produce positive results for students and others in general. According to some research, it has a physiological impact on humans that is similar to the advantages of antidepressants and anti-anxiety meditation, and so reduces mental stress and tension. Yoga and meditation are essential for maintaining healthy physical systems. Yoga enhances a person's physical and mental health, while meditation gives them peace of mind and control over their bodies. Yoga's ultimate purpose is not just to acquire and maintain excellent health, but also to realise oneself. A mortal human achieves the utmost satisfaction by recognising their actual self and letting go of their dread of death (Adiswaranda, 2004). Job burnout and organisational stress are things that happen in a person's job, like too much work, bad working conditions, and conflicting roles. Emotional exhaustion, depersonalization, and a drop in personal achievement are all signs of job burnout. Term "work depression" has been used to describe people who are tired of their jobs.

Effects of pranayamas:

Mental Effects - Stress, anxiety, and sadness are relieved, thoughts and emotions are quieted, inner equilibrium is restored, energy blockages are released, and so on.

Physical Effects – Body health preservation, Blood purification, Improved oxygen absorption, Strengthening the lungs and heart, Blood pressure regulation, Nerve system regulation, Supporting the

healing process and therapeutic treatments, Increasing resistance to infection.

Conclusion

In today's educational environment, there is a lack of a holistic approach and a lack of equal development of knowledge, which only deals with the outside world and not with an individual's inner-self. Asanas and breathing exercises are part of yoga, which is a way to build strength in the body and calm the mind. Is something that helps people with stress, anxiety, and sadness by using their mind and body to deal with them. Yoga assists us in maintaining emotional equilibrium. It enhances our mental health and alleviates worry and despair. Yoga increases memory and focus while also reducing the consequences of stressful events. As a result, yoga should be made a mandatory subject beginning in elementary school. Today, not only adults, but even youngsters, are involved in such crimes, which paints a very negative image of society. As a result, yoga enhancement is a current requirement for reducing bad emotions. It will also aid in the development of moral values in youngsters. Yoga is becoming more popular across the globe as a mind-body activity that is both accessible and affordable. It's because they don't want to get help from someone else and they think yoga is better than medicine for improving their mental health. With yoga, there are less side effects and it costs less than other treatments like pharmaceuticals and psychotherapy. It also makes you more physically fit and helps you become more self-reliant. Yoga's main goal is to make you more compassionate and to make you feel like you're connected to and one with all living things. Yoga has shown that it can help people improve their mental health. It is acceptable, accessible, affordable, and helps people become more self-sufficient. Yoga is the comprehensive technique to obtain mental balance, tranquilly, and refreshment towards general well-being and welfare of human beings in today's contemporary age of stress and tensions, mechanical living style. It is preferable to teach yoga to pupils at the school level, where it may be sustained, so that they can learn to cope with rising academic pressures and confront competitions more efficiently while maintaining a happy outlook on life. It is past time for us to return to our origins in order to achieve mental and physical well-being.

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16.

Water Purification Methods in Ancient India: An Early Study in Chemistry

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Water pollution is often considered a modern concern, but awareness about clean water existed even in early civilizations. Ancient India, known for its rich philosophical and scientific heritage, developed numerous methods to purify and conserve water. This article aims to study the chemical basis and environmental relevance of these traditional practices, positioning them as precursors to the discipline of environmental chemistry.

Sources of Information

Ancient Indian knowledge systems such as:

- The Rigveda and Atharvaveda

The Rigveda, composed around 1500 BCE, is the oldest of the Vedas and contains hymns, prayers, and rituals that reflect the socio-religious life of ancient India. Water, known as "Jalam" in Sanskrit, is frequently mentioned in the Rigveda as a symbol of life, purity, and spiritual rejuvenation. The text emphasizes the importance of maintaining the purity of natural resources, including water, which is essential for human health and ecological balance.

There are evidences of use of natural resources like sand and charcoal, employing process of boiling, using herbs like Nirmali seeds and spirogaira and using sunlight as disinfectant To purify water in Rigveda(Waghe & Joshi, 2023)

- Charaka Samhita and Sushruta Samhita (Ayurvedic texts) These texts describe various kinds of water in the ancient times. The river water and Rainwater are considered to be more pure and suitable for drinking because of them being flowing or without stagnation and obtained from distillation respectively.(Skandhan et al., 2011a) Sushrut mention a kind of specific drugs for cleaning water named Dhavashwakarnadhi yoga, which could be used by middle class population.(S & H, 2018)
- Manusmriti Manu Smriti does not specifically focus on purification of water techniques but it emphasizes purity of soul. Still, while going through it, there are mentions about boiling, filtration and using herbs for water cleaning.(Skandhan et al., 2011b)
- Arthashastra by Kautilya describes use of rain water for agriculture as well as considered to be pure for drinking.(Sadhale, 2006)

The architecture remains of the Indus Valley Civilization indicate advanced water management and drainage systems in the city.

Traditional Methods of Water Purification

1. Sedimentation and Filtration

According to the ancient text sedimentation and filtration methods were very common in the ancient times for the cleaning of water and making it worth drinking they used to use coarse particles or granules for sedimentation and then use cotton clothes for the filtration purpose.(Danil De Namor, 2007)

2. Use of Natural Coagulants

The seeds of *Moringa oleifera* (drumstick) were crushed and added to turbid water. These seeds act as natural covalent as they have cationic proteins which help to coagulate the suspended particles which is then filtered or allowed to settle letting the water clean .This approach is now validated by modern chemistry.(Polepalli & Rao, 2018; Verma, 2022)

3. Charcoal Filtration

The charcoal which is obtained from burnt wood was used to remove impurities in the ancient times this charcoal can be compared to activated carbon these days which is a tendency to absorb the heavy metals and impurities in itself.(Smith, 2017)(Waghe & Joshi, 2023)

4. Boiling and Sunlight Exposure

Boiling was advised in Ayurvedic texts to eliminate pathogens—a method consistent with current practices. Additionally, storing water in sunlight (solar disinfection or SODIS) is an age-old practice that aligns with modern solar water treatment techniques.(Waghe & Joshi, 2023)

5. Copper and Silver Vessels

Charak Samhita in Indian literature discusses about use of copper and silver metals for health benefits. These metals have antibacterial properties in them, which inhibits growth of microorganisms and makes water suitable for drinking. This is supported by the modern research.(Faúndez et al., 2004; Noyce et al., 2006; Sudha et al., 2012)

6. Herbal Purification Agents

Many of the herbs like Tulsi Neem etc have been reported to be used in India since history for antibacterial, antiviral properties and removing germs present in food and water. Indian Ayurveda has used it in many medicines and Jari booties. Their use is being promoted in the modern times as well. Along with this, tulsi has also been used for air purification and used as holy object.(Almatroodi et al., 2020; Cohen, 2014)

These ancient methods emphasize sustainability, biodegradability, and minimal waste—the core principles of green chemistry today.

Limitations and Scope for Modern Application

Though the above-mentioned methods are effective and were widely used, yet they have limitations because they do not ensure the complete purity of water merely by boiling or using herbs, like

removal of heavy metals or some microbials. These methods also have scalability issues as this does not ensure purity at large scale. Along with this, only the clarity or transparency of water, taste and odour do not satisfy the purity criteria. And above all, any of these methods does not qualify all the essential criteria which are needed to make water fit for drinking. Thus, a lot of research need to be done to merge and employ the ancient methods with the modern methods of purification of drinking water, as these methods was more natural, based on economic use of resources and environment friendly.

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17.**Indian Family System - A School of Girls'
Education, Values and Sanatana Culture**

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Family, a basic unit of social structure, the exact definition of which can vary greatly from time to time and from culture to culture. How a society defines family as a primary group, and the functions it asks families to perform, are by no means constant. There has been much recent discussion of the nuclear family, which consists only of parents and children, but the nuclear family is by no means universal. In the United States, the percentage of households consisting of a nuclear family declined from 45% in 1960 to 23.5% in 2000. In preindustrial societies, the ties of kinship bind the individual both to the family of orientation, into which one is born, and to the family of procreation, which one founds at marriage and which often includes one's spouse's relatives. The nuclear family also may be extended through the acquisition of more than one spouse, or through the common residence of two or more married couples and their children or of several generations connected in the male or female line. This is called the extended family; it is widespread in many parts of the world, by no means exclusively in pastoral and agricultural economies. The primary functions of the family are reproductive, economic, social, and educational; it is through kin itself variously defined that the child first absorbs the culture of his group.

Indian Family System

In India the family is the most important institution that has survived through the ages. India, like most other less industrialized, traditional, eastern societies is a collectivist society that emphasizes family integrity, family loyalty, and family unity. C. Hui and H. Triandis defined collectivism, which is the opposite of individualism as, “a sense of harmony, interdependence and concern for others”. More specifically, collectivism is reflected in greater readiness to cooperate with family members and extended kin on decisions affecting most aspects of life, including career choice, mate selection, marriage and its continuity.

The beauty about the Indian culture lies in its age-long prevailing tradition of the joint family system. It’s a system under which even extended members of a family like one’s parents, children, the children’s spouses and their offspring, etc. live together. The eldermost, usually the male member is the head in the joint Indian family system who makes all important decisions and rules, whereas other family members abide by it dutifully with full respect.

A major factor that keeps all members, big and small, united in love and peace in a joint family system in India is the importance attached to protocol. This feature is very unique to Indian families and very special. Manners like respecting elders, touching their feet as a sign of respect, speaking in a dignified manner, taking elders’ advice prior taking important decisions, etc. is something that Indian parents take care to inculcate in their kids from very beginning. The head of the family responds by caring and treating each member of the family the same.

Role of culture and Values in shaping the family

Culture, however, is not an external passive influence on the families but families themselves serve as the primary agent for transferring these cultural values to their members. Parents help children to learn, internalize, and develop understanding of culture through both covert and overt means. Family members modify behaviors in themselves and others by principles of social learning. In this process, the general norms and beliefs may be modified to suit the needs of the family creating a set of “family values” – A subset of societal norms unique to the family.

Such cultural differences mean that people in different cultures have fundamentally different constructs of the self and others. For more collectivistic societies like ours, the self is defined relative to others, is concerned with belongingness, dependency, empathy, and reciprocity, and is focused on small, selective in-groups at the expense of out-groups. Relationships with others are emphasized, while personal autonomy, space and privacy are considered secondary. Application of western psychotherapy, primarily focused on dynamic models, ego structure and individuals, therefore, becomes difficult in the Indian collectivistic context. The point has been well discussed by Indian psychiatrists in the past.

The traditional Indian family

Such traditional families form the oldest social institution that has survived through ages and functions as a dominant influence in the life of its individual members. Indian joint families are considered to be strong, stable, close, resilient and enduring with focus on family integrity, family loyalty, and family unity at expense of individuality, freedom of choice, privacy and personal space. Structurally, the Indian joint family includes three to four living generations, including grandparents, parents, uncles, aunts, nieces and nephews, all living together in the same household, utilizing a common kitchen and often spending from a common purse, contributed by all. Change in such family structure is slow, and loss of family units after the demise of elderly parents is counterbalanced by new members entering the family as children, and new members (wives) entering by matrimonial alliances, and their off springs. The daughters of the family would leave following marriage. Functionally, majority of joint families adhere to a patriarchal ideology, follow the patrilineal rule of descent, and are patrilocal; although matrilineal and matriarchal families are quite prevalent in some southern parts of the country. The lines of hierarchy and authority are clearly drawn, with each hierarchical strata functioning within the principal of “collective responsibility”. Rules of conduct are aimed at creating and maintaining family harmony and for greater readiness to cooperate with family members on decisions affecting almost all aspects of life, including career choice, mate selection, and marriage.

The changing Indian family

The socio-cultural milieu of India is undergoing change at a tremendous pace, leaving fundamental alterations in family structure

in its wake. The last decade has not only witnessed rapid and chaotic changes in social, economic, political, religious and occupational spheres; but also saw familial changes in power distribution, marital norms and role of women. A review of the national census data and the National Family Health Survey (NFHS) data suggests that, gradually, nuclear families are becoming the predominant form of Indian family institution, at least in urban areas. The 1991 census, for the first time reported household growth to be higher than the population growth, suggesting household fragmentation; a trend that gathered further momentum in the 2001 and the 2010 census. A comparison of the three NFHS data also shows that over the years there has been a progressive increase in nuclear families, more in urban areas, with an associated progressive decrease in the number of household members. Other important trends include a decrease in age of the house-head, reflecting change in power structure and an increase in households headed by females, suggesting a change in traditional gender roles.

IMPORTANCE OF VALUES IN INDIA

India, a country renowned for its diverse cultures and traditions, has family values deeply ingrained in its societal fabric. These values, passed down from generation to generation, shape the behavior, attitudes, and decisions of individuals within the family unit. The core of Indian family values lies in the principles of love, respect, and mutual support.

The Essence of Indian Family Values

At the heart of Indian family values is the concept of 'Dharma', or duty. This principle guides individuals to act responsibly towards their family members, fulfilling their roles and responsibilities with utmost dedication. The family is viewed as a cohesive unit, where each member's actions are not just for individual gain but for the collective good of the family.

Respect and Reverence

Respect for elders is a cornerstone of Indian family values. Younger members are taught to show deference to their elders, considering their wisdom and experience as guiding lights. This respect extends beyond the immediate family to include relatives and the larger community.

Collectivism and Interdependence

Indian family values emphasize collectivism over individualism. The family is seen as a collective entity with shared goals and aspirations. This interconnectedness fosters a sense of belonging and promotes interdependence, where each member contributes to and benefits from the family's resources and achievements.

Endurance and Sacrifice

Endurance and sacrifice are other significant aspects of Indian family values. Family members are expected to endure hardships and make sacrifices for the betterment of the family. This mindset encourages resilience and fosters a strong bond among family members. With globalization and the influence of Western cultures, Indian family values have seen a gradual transformation. The traditional joint family system is giving way to nuclear families, and individualistic values are gaining prominence. However, the core values of love, respect, and mutual support continue to hold strong and guide the dynamics within Indian families.

The Values and Cultural Context of Girls Education in India

If a broad profile were to be drawn of the common experience of growing up female in Indian society, it would highlight physical restrictions as well as mental or psychological negativity communicated to little girls from birth onwards. A son's birth is greeted with celebration while a daughter's birth is at best, endured. The unwantedness of daughters gets conveyed in ways which are hardly subtle. The idea of life-long dependence and insecurity get communicated in terms of marriage and motherhood being the sole objectives of a woman's life. The temporary nature of one's natal home and the anxiety of adjustment in an unknown family form part of the learning that a girl cannot escape during childhood. Communication of deep-rooted beliefs, such as the "impurity" of menstruation, enables girls to internalize their lower ritual status under patriarchy. Transmission of culturally sanctioned attitudes constitutes the gendering process which guides girls into becoming socially acceptable women. Socialization in the family setting receives powerful reinforcement from the modern media, including both television and cinema, which use these basic elements of culture to weave commercially successful products which perpetuate tradition both in terms of its material practices and attitudes.

Little attention has been paid in educational research and teacher training to the implications of such negative aspects of girls' upbringing on their psychological development. Educational policy endorses child-centered pedagogic practices which essentially respond to the child's own search for opportunities to express agency. Nurturing of self-esteem is another major value in the child-centered philosophy of education, as it enhances the motivation and confidence to learn. In the case of girls, both agency and self-esteem come under stress and, in many cases, get damaged at an early age by behavioral practices and beliefs entrenched in the culture of child-rearing. Some of these practices have an explicitly discriminatory character, involving positive parental behavior towards the male siblings which heightens the negative treatment meted out to girls. But even outside the frame of discriminatory behavior, the everyday signal conveyed to girls that they have a vulnerable body and a "weak" mind, unsuitable for the rigor of subjects like science and mathematics, poses a major challenge for school education. There is little evidence to suggest that teachers recognize the challenge or appreciate its nature and scale. They themselves carry patriarchal prejudices towards the feminine self, and in this matter, male teachers may not differ much from women teachers. Internalization of patriarchy is common to both, and teacher education does little to induce self-reflection or questioning. Teachers are trained to impart subject knowledge and that is what they mainly do, without worrying about the socially constructed structure of their students' minds.

This takes many forms, some of which are entrenched in curricular and institutional policies. According to V. Geetha, as the recent studies carried out by Nirantar show, gender bias and stereotyping are not just common but structurally embedded in textbook writing, and the relatively more developed States like Tamil Nadu are no exception to this trend. The vast effort made by the National Council of Educational Research and Training (NCERT) in this respect, on the basis of the National Curriculum Framework – 2005, has yet to make an impact on textbooks development processes used by State governments and private publishers. NCERT's new syllabi and textbooks take a pro-active and analytical, rather than a remedial stance towards gender asymmetry. They re-articulate social and economic relations in ways that would enable both teachers and

children to notice the presence of women in social spaces where they have been rendered invisible by the symbolic power of patriarchy. For instance, in the Class VI textbook of the new subject called Socio-Political Life, the farmer whose profile is drawn to draw children's attention towards the rural economy is a woman. Gender relations are introduced in other subjects and textbooks at a deeper, epistemic level, not merely to avoid the charge of bias towards women.

Girls' education needs to be looked at in a far wider and more complex and nuanced perspective than what is generally applied with reference to gender parity. This wider perspective needs to be constructed on the basis of the realization that girls' lives and education in contemporary India continue to be shaped by historical forces which have their roots in culture. The specificity of India's patriarchy lies in the relation between gender and caste. The concepts of purity and pollution are fundamental to caste, and though women themselves are deemed "impure," the major burden of the maintenance of caste purity rests on them. According to Leela Dube, "the principles of caste inform the specific nature of sexual asymmetry of Hindu society; the boundaries of caste and the hierarchies of caste are articulated by gender." How caste and kinship affect girls' lives should be a matter of as much interest to the modern state as the challenges posed by the caste system to the Constitution's egalitarian social vision are. Matters pertaining to girls constitute a hard area of social policy, and the state's record of dealing with such matters offers considerable signs of continuity since colonial times. The latest evidence of this continuity comes from the revised version of act, approved by the parliament in 2006, which seeks to curb child marriage. The 1929 version mirrored a hesitant state, and so does the 2006 version. The state's capacity to deal with such matters was shaped during the colonial period in the context of the emerging relations of power between native elites and the colonizers. As Charu Gupta points out, Hindu revivalism and Hindu-Muslim separatism developed, during the late colonial period, a modern discourse of misogyny which later became part of a political ideology. This historical legacy continues to act as a resource for the symbolic violence that permits modernity and democracy to operate in conjunction with women's oppression from an early age. An

engagement with the structures of knowledge and power which permit this conjunction to perpetuate itself is necessary to devise a new policy and strategies for girls' education.

Summary

Investing in girls' education transforms communities, countries and the entire world. Girls who receive an education are less likely to marry young and more likely to lead healthy, productive lives. They earn higher incomes, participate in the decisions that most affect them, and build better futures for themselves and their families. Girls' education strengthens economies and reduces inequality. It contributes to more stable, resilient societies that give all individuals – including boys and men – the opportunity to fulfill their potential. Education plays a key role in achieving social justice and creating an inclusive society that is free from inequality. Every Indian child must have the opportunity to get a quality education irrespective of their financial status, caste, creed and background.

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18.**Indian Knowledge System: An Analytical Study of Its Foundations and Contemporary Relevance**

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Introduction:

The Indian Knowledge System (IKS)) represents a vast intellectual heritage that has been systematically developed, preserved, and transmitted across generations for more than 5,000 years. Rather than being a collection of isolated traditional practices, IKS constitutes a well-structured framework for the creation, validation, and application of knowledge. It is distinguished by its holistic and integrated approach to understanding reality, where different fields of knowledge are interconnected and directed toward the overall well-being of individuals and society. Recognizing its significance, the National Education Policy 2020 has emphasized the need to integrate the Indian Knowledge System into modern educational curricula. The policy highlights the importance of incorporating indigenous knowledge traditions to promote multidisciplinary learning, cultural awareness, and intellectual diversity within the education system.

The relevance of the Indian Knowledge System extends beyond its historical legacy; it also offers valuable perspectives for addressing contemporary global challenges related to sustainability, healthcare, and human development. In this context, Albert Einstein, one of the most influential physicists of the twentieth century, acknowledged the contribution of ancient India by stating, “We owe a lot to the ancient Indians, teaching us how to count. Without which most

modern scientific discoveries would have been impossible.” Such recognition highlights the profound influence of Indian knowledge traditions on the development of global intellectual and scientific thought.

Historical Background

Ancient Origins and Vedic Foundations

The origins of the Indian Knowledge System (IKS) can be traced back to the Vedic period, particularly with the composition of the Rigveda between approximately 1500 BCE and 1000 BCE during the late Bronze Age. The Vedic corpus, consisting of the Rigveda, Yajurveda, Samaveda, and Atharvaveda, forms the foundational layer of Sanskrit literature and represents some of the earliest sacred texts of Hinduism. These scriptures established the epistemological and ontological foundations that guided intellectual and cultural development across the Indian subcontinent for several millennia.

The Vedic knowledge system was characterized by its strong oral tradition. Knowledge was transmitted through highly refined mnemonic techniques designed to ensure precise preservation across generations. This method of transmission formed the tradition of Shruti (that which is heard), considered sacred and authoritative knowledge. In contrast, Smriti (that which is remembered) referred to texts and traditions derived from the foundational Vedic knowledge. This distinction highlights the structured and disciplined nature of knowledge preservation within the early Indian intellectual tradition.

Classical Period Development

The classical period, spanning approximately from 400 CE to 1200 CE, witnessed significant advancements in various fields of knowledge, including mathematics, astronomy, linguistics, and philosophy. Prominent scholars such as Aryabhata and Brahmagupta made pioneering contributions that greatly influenced the development of scientific thought.

During this period, knowledge became increasingly systematized into distinct disciplines, leading to the production of specialized texts and scholarly treatises. One of the most remarkable works of this era is the Ashtadhyayi by Panini, composed around

the 5th century BCE. This highly sophisticated work on Sanskrit grammar consists of approximately 3,959 rules that systematically describe the structure and morphology of the Sanskrit language. The text incorporates advanced linguistic concepts such as phonemes, morphemes, metarules, transformations, and recursive structures, demonstrating the remarkable scientific rigor and analytical sophistication of ancient Indian linguistic scholarship.

Key Elements of the Indian Knowledge System (IKS)

The Eighteen Knowledge Systems

The traditional Indian educational framework recognizes eighteen fundamental branches of knowledge, collectively known as Ashtadasha Vidyasthana (the eighteen seats of learning). These knowledge systems encompass both spiritual and practical disciplines, reflecting the holistic and integrated approach that characterizes the Indian Knowledge System.

The Four Vedas

The Vedas form the foundational corpus of the Indian Knowledge System, each serving distinct purposes in the development and transmission of knowledge.

- Rigveda – Considered the oldest Veda, it consists of 1,028 hymns (suktas) that explore cosmology, nature, and philosophical ideas.
- Yajurveda – Primarily concerned with ritual procedures and sacrificial practices that guide religious ceremonies.
- Samaveda – Emphasizes musical chanting and melodic recitation of hymns, many of which are derived from the Rigveda.
- Atharvaveda – Contains knowledge related to healing practices, protective rituals, and aspects of daily life.

The Four Upavedas

The Upavedas are auxiliary disciplines derived from the Vedas that apply Vedic knowledge to practical and societal domains.

- Ayurveda – Derived from the Rigveda; concerned with medicine, health, and life sciences.

- Dhanurveda – Associated with the Yajurveda; focuses on warfare, martial training, and defense strategies.
- Gandharvaveda – Linked with the Samaveda; relates to music, dance, and performing arts.
- Arthashastra – Traditionally associated with the Atharvaveda; deals with governance, economics, and political administration.

Six Schools of Indian Philosophy

The six orthodox schools of Indian philosophy, known collectively as Shad-Darshanas, constitute the core of classical Hindu philosophical thought. These systems provide diverse yet interconnected perspectives on metaphysics, epistemology, ethics, and spiritual practice.

- Nyaya – Established by Akshapada Gautama, this school emphasizes logic, reasoning, and methods of acquiring valid knowledge (pramanas).
- Vaisheshika – Founded by Kanada, it proposes an early atomic theory and categorizes reality into fundamental elements.
- Samkhya – Traditionally attributed to Kapila, this system explains the universe through the dual principles of Purusha (consciousness) and Prakriti (matter).
- Yoga – Systematized by Patanjali, it outlines an eightfold path for achieving harmony between individual consciousness and universal reality.
- Mimamsa – Focuses on the interpretation of Vedic texts and the understanding of dharma through rigorous textual analysis.
- Vedanta – Explores the ultimate nature of reality, the self (Atman), and the concept of liberation (moksha), forming the philosophical culmination of Vedic thought.

Four Purusharthas

The concept of Purushartha is a foundational principle in the Indian Knowledge System (IKS), representing the four fundamental goals of human life. These goals provide a comprehensive framework for leading a balanced, purposeful, and fulfilling existence. Rooted in ancient Indian philosophy, the Purusharthas guide individuals in

harmonizing material pursuits with ethical conduct and spiritual development, reflecting the holistic worldview of IKS that integrates personal well-being with societal and cosmic harmony.

The four Purusharthas are:

1. **Dharma (Righteousness and Duty):** Dharma represents morality, ethical conduct, duty, and adherence to the cosmic order. It serves as the spiritual and ethical foundation of life, guiding individuals to act in ways that are just, responsible, and aligned with universal principles.
2. **Artha (Wealth and Prosperity):** Artha encompasses the pursuit of wealth, economic stability, and material well-being. It emphasizes the responsible acquisition and management of resources for both personal security and societal benefit.
3. **Kama (Desire and Enjoyment):** Kama refers to pleasure, desire, love, and aesthetic enjoyment. It involves the pursuit of emotional and sensory fulfillment, including art, relationships, and creative expression, in a manner that is balanced and ethically responsible.
4. **Moksha (Liberation and Self-Realization):** Moksha signifies spiritual liberation, self-realization, and freedom from the cycle of birth and death (samsara). It represents the ultimate goal of human life—the attainment of inner peace, wisdom, and unity with the universal consciousness.

Together, these four aims of life offer a holistic framework that balances ethical conduct, material prosperity, emotional fulfillment, and spiritual liberation, guiding individuals toward comprehensive personal and societal well-being.

Panch Mahakoshh

In Vedanta philosophy, the Panch Mahakoshh refers to the five sheaths or layers of human existence, each representing a distinct dimension of the self, from the gross physical body to the subtlest layer of bliss. These layers are as follows:

1. **Annamaya Kosha (Physical Sheath):** The outermost layer, composed of the physical body, is sustained by food (Anna). It is the grossest aspect of human existence and undergoes birth,

growth, decay, and death. The physical body serves as the instrument of action and perception for all the subtler sheaths within.

2. **Pranamaya Kosha (Vital Sheath):** This layer represents the vital body and is constituted by the five vital airs (Pranas) . Prana, Apana, Udana, Samana, and Vyana, along with the five organs of action. The pranas regulate physiological functions such as respiration, circulation, digestion, and excretion. The organs of action—the mouth, hands, feet, genitals, and anus—serve as instruments for interaction and expression in the external world.
3. **Manomaya Kosha (Mental Sheath):** The mental body consists of the mind, the five organs of knowledge, and memory. The mind governs emotions, desires, doubts, and imagination. The organs of knowledge—the eyes, ears, nose, tongue, and skin—enable perception and cognition of the external environment. Memory functions as a repository of impressions and experiences, shaping personality, behavior, and individual character.
4. **Vijnanamaya Kosha (Intellectual/Knowledge Sheath):** This sheath represents the intellect and wisdom. It is responsible for reasoning, discernment, judgment, and decision-making, allowing the individual to distinguish truth from falsehood and make informed choices.
5. **Anandamaya Kosha (Bliss Sheath):** The innermost and subtlest layer, the bliss sheath (Ananda) is the source of universal happiness from which all existence emerges. It represents a state of pure contentment and harmony, beyond emotions or mental activity—a condition of profound silence, perfect health, and total equilibrium.

Scientific and Mathematical Contributions

The Indian Knowledge System (IKS) has made significant contributions to the fields of mathematics, astronomy, and natural sciences. Several fundamental mathematical concepts—including the decimal number system, the concept of zero as a number, negative numbers, and advanced algebraic methods—originated in ancient

India. These innovations played a crucial role in shaping the development of modern mathematics.

One of the most notable works in this tradition is Aryabhata, composed by Aryabhata around 510 CE. This text demonstrates a sophisticated understanding of astronomy, mathematics, and trigonometry. Aryabhata's work introduced innovative techniques for calculating planetary motions and trigonometric values, reflecting the advanced scientific thinking of the period.

Further significant progress in mathematics was made by scholars of the Kerala School of Astronomy and Mathematics. Mathematicians from this tradition developed series expansions for trigonometric functions several centuries before similar concepts appeared in Europe. These pioneering developments laid important foundations for later advancements in calculus and other branches of modern mathematics.

Medical Systems

Ayurveda, the traditional Indian system of medicine, originated more than 4,000 years ago and represents a comprehensive and holistic approach to health and healing. One of its foundational texts is the Charka Samhita, attributed to Charka and composed between the 2nd century BCE and the 2nd century CE. This work establishes the fundamental principles of Ayurvedic medicine and outlines detailed methods of diagnosis, treatment, and prevention. Ayurveda is based on the theory of three doshas—Vata, Pitta, and Kapha—which represent the physiological forces governing the body. According to this system, health is maintained through the balance of these doshas and the proper flow of vital energy (prana). Ayurvedic practice emphasizes a holistic approach to healthcare, combining personalized diagnosis with treatments that may include dietary regulation, herbal remedies, therapeutic massage, meditation, and detoxification procedures.

Contemporary Relevance of the Indian Knowledge System (IKS)

Educational Integration

The National Education Policy 2020 emphasizes the integration of the Indian Knowledge System into educational institutions at all levels. This policy acknowledges the potential of IKS to promote

multidisciplinary learning, critical thinking, and cultural awareness while encouraging innovation and holistic development among students.

Several leading institutions, including Indian Institute of Technology Kanpur and Indian Institute of Technology Madras, have established dedicated centers for research and the promotion of Indian Knowledge Systems. In addition, the University Grants Commission, in collaboration with the Ministry of Education's IKS Division, has launched various initiatives to train faculty members and develop structured curricula for IKS education. These efforts aim to ensure the accurate, systematic, and culturally sensitive transmission of traditional knowledge within the modern academic framework.

Healthcare Applications

Contemporary research has increasingly validated several principles of traditional Indian medical practices, particularly in areas such as stress management, chronic disease prevention, and holistic wellness. Practices associated with Yoga and meditation have gained global recognition for their effectiveness in improving mental health and overall physical well-being.

Similarly, Ayurveda offers a preventive and lifestyle-oriented approach to healthcare. Its emphasis on balanced living, diet regulation, and natural therapies provides valuable insights for addressing lifestyle-related disorders that are increasingly prevalent in modern society.

Sustainability Solutions

The Indian Knowledge System strongly emphasizes sustainable living and the interconnectedness of all forms of life. This perspective is reflected in the philosophical concept of Vasudhaiva Kutumbakam, which promotes the idea of global unity and ecological harmony. Such principles are increasingly relevant in addressing contemporary environmental challenges and promoting responsible resource management.

Traditional Indian agricultural practices, rooted in ecological balance and respect for nature, offer sustainable alternatives to chemical-intensive farming. These practices encourage biodiversity

conservation, soil fertility, and long-term environmental sustainability.

Global Recognition

In recent years, the global community has shown growing interest in indigenous knowledge systems for addressing complex global challenges such as food security, environmental conservation, and holistic healthcare. International organizations and research institutions are increasingly collaborating with Indian scholars to study, preserve, and apply traditional knowledge systems. This growing recognition highlights the continuing relevance of the Indian Knowledge System in contributing to sustainable and inclusive global development.

Indian Knowledge System in Education

The integration of the Indian Knowledge System (IKS) into the education sector aims to present traditional knowledge in a systematic and scientific manner within both school and higher education curricula. The initiative promotes the inclusion of indigenous, tribal, and traditional learning practices alongside modern academic disciplines. These knowledge traditions encompass diverse fields such as mathematics, astronomy, philosophy, Yoga, architecture, medicine, agriculture, engineering, linguistics, literature, sports, games, governance, polity, and environmental conservation.

Specialized academic courses are also being introduced in areas such as tribal ethno-medicinal practices, forest management, traditional organic farming, and natural crop cultivation. In addition, an engaging course on Indian Knowledge Systems has been proposed as an elective subject for secondary school students. This initiative reflects the vision of the National Education Policy 2020, which emphasizes that learners should gain first-hand exposure to India's rich cultural and intellectual diversity.

To support experiential learning, students are encouraged to participate in educational tours across different regions of the country. These activities aim to develop awareness and appreciation of India's diverse cultures, traditions, and knowledge heritage while also promoting national integration and tourism. Under the Ek

Bharat Shreshtha Bharat program, approximately 100 tourist destinations across India have been identified where educational institutions can send students to study regional history, scientific contributions, traditions, indigenous literature, and knowledge systems as part of their academic learning.

At present, about 32 dedicated IKS Centres have been established to promote original research, education, and dissemination of traditional knowledge. Around 75 advanced interdisciplinary research initiatives—covering areas such as ancient metallurgy, historical town planning, water resource management, and traditional rasayanashastra—are currently being developed. In addition, approximately 5,200 internships related to IKS have been offered to students, while nearly 50 faculty development programs, workshops, and national and international conferences have been conducted to strengthen academic capacity in this field.

More than 8,000 higher education institutions have begun incorporating IKS into their curricula, and large-scale digitization efforts have been undertaken, including the preservation of nearly 150,000 traditional manuscripts and books. The IKS Division has also brought together scholars, practitioners, and experts from multiple disciplines to develop Vision 2047, a roadmap aimed at revitalizing and promoting Bharatiya Jñana Parampara (India's knowledge traditions).

By drawing upon India's extensive intellectual heritage, these initiatives aim to encourage further research that can address contemporary global challenges. Integrating IKS into mainstream education not only helps preserve India's knowledge traditions but also inspires students to engage with both traditional wisdom and modern scientific ideas. Such exposure enhances cultural awareness, strengthens intellectual development, and builds confidence among learners while preparing them to contribute meaningfully to society.

Challenges and Opportunities

Preservation Challenges

Despite recent technological advancements, several challenges persist in the preservation and promotion of the Indian Knowledge System (IKS). A large number of ancient manuscripts and traditional

records are at risk due to physical deterioration, inadequate conservation facilities, and limited digitization efforts. In addition, resistance from certain traditional knowledge holders, concerns regarding ethical use of knowledge, and issues related to intellectual property rights further complicate preservation initiatives. Technological limitations in accurately digitizing and interpreting classical scripts and ancient languages also pose significant barriers to the systematic documentation and dissemination of traditional knowledge.

Integration Difficulties

Integrating the Indian Knowledge System into modern academic curricula presents additional challenges. These include the need for standardized frameworks, mechanisms for quality assurance, and the preparation of trained faculty capable of teaching interdisciplinary subjects related to IKS. Ensuring that traditional knowledge is represented authentically while also making it accessible and relevant to contemporary learners requires careful academic planning, extensive research, and collaborative efforts among scholars from diverse disciplines.

Opportunities for Innovation

At the same time, the intersection of ancient wisdom and modern technological advancements offers significant opportunities for innovation. Emerging technologies such as artificial intelligence, machine learning, and digital archiving systems can support the documentation, translation, and analysis of traditional texts. Similarly, technologies such as Blockchain and Cloud Computing can facilitate secure storage, preservation, and ethical sharing of traditional knowledge resources on a global scale.

Research and Development

Sustained research on the Indian Knowledge System can promote interdisciplinary innovation and contribute to solutions for contemporary global challenges. By integrating traditional knowledge with modern scientific approaches, researchers can develop sustainable, effective, and culturally sensitive solutions in fields such as healthcare, environmental management, education, and technology.

Educational Transformation

The effective incorporation of the Indian Knowledge System into higher education can help create a more inclusive academic environment that values indigenous wisdom alongside modern scientific knowledge. Such an approach can strengthen cultural identity, encourage critical thinking, and foster innovation among students and researchers.

Global Collaboration

International collaboration plays a crucial role in expanding the study and application of traditional knowledge systems. Partnerships between global research institutions, scholars, and cultural organizations can promote the responsible sharing of knowledge while ensuring respect for intellectual property rights and cultural sensitivities. These collaborative efforts can contribute to addressing global challenges related to health, sustainability, and human development.

Conclusion

In light of the above discussion, it can be concluded that the Indian Knowledge System (IKS) represents a profound and enduring intellectual tradition that continues to offer valuable insights for addressing contemporary global challenges. Developed over millennia, IKS embodies a systematic approach to the creation, validation, and transmission of knowledge, providing a comprehensive framework for understanding reality, human development, and societal well-being.

The integration of the Indian Knowledge System with modern education and research has the potential to promote more holistic, sustainable, and culturally responsive approaches to knowledge generation and innovation. In this context, the National Education Policy 2020 marks a significant milestone by formally recognizing the importance of incorporating IKS into contemporary educational frameworks. This initiative represents an important step toward preserving India's rich intellectual heritage while utilizing its insights for modern applications.

As the world increasingly seeks solutions that balance technological advancement with environmental sustainability and

human well-being, the wisdom embedded within the Indian Knowledge System offers meaningful guidance for building a more balanced and harmonious future. The effective preservation, promotion, and integration of IKS will require collaborative efforts among educational institutions, policymakers, researchers, technology developers, and traditional knowledge holders.

By adopting such a comprehensive approach, India can make significant contributions to global knowledge while simultaneously safeguarding and promoting its rich cultural and intellectual traditions.

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19.**Mindfulness and meditation practices in Indian Knowledge System: Global adoption and educational impact**

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Introduction:

Globalization has created a world where ideas, cultures, and technologies are increasingly interconnected, presenting both opportunities and challenges. While Western knowledge systems have gained global prominence, the significance of indigenous knowledge traditions has also come to the forefront, particularly in addressing the complex issues of the modern era. The Indian Knowledge System (IKS), with its profound philosophical, scientific, and cultural roots, offers a wealth of insights that can contribute significantly to global discussions on sustainability, health, education, and ethics.

The Indian Knowledge System is vast, encompassing diverse disciplines such as philosophy, mathematics, medicine (notably Ayurveda), astronomy, ecology, and education. These traditions offer holistic approaches, emphasizing the interconnectedness of the self, society, and the environment. In an era marked by environmental degradation, mental health challenges, and a fragmented approach to education and healthcare, IKS provides frameworks that promote balance, well-being, and sustainability. It evaluates the practical implications of Indian philosophical teachings, health systems such as Ayurveda and Yoga, and traditional ecological knowledge in addressing global challenges. Furthermore, the study examines the

integration of IKS into modern educational curricula and global healthcare systems, highlighting its potential to complement and enhance contemporary practices.

Relevance of the Study:

The study of the Indian Knowledge System (IKS) is increasingly relevant in the context of globalization. As the world becomes more interconnected, there is a growing need to address complex global challenges such as climate change, health disparities, and educational inequalities. IKS offers sustainable practices and alternative frameworks for addressing these issues, grounded in a profound understanding of the interconnectedness of life, nature, and the universe.

This study seeks to highlight the contributions of IKS to these global challenges by examining its core components—including philosophical systems, scientific knowledge, ecological practices, and health frameworks. Historically practiced in India, IKS provides insights that can complement modern scientific and technological approaches. Moreover, the rising global interest in holistic health, ethical education, and sustainable living presents a fertile ground for integrating traditional Indian knowledge systems into contemporary discourse, demonstrating their enduring relevance in addressing the pressing issues of the 21st century.

IKS and Health: Ayurveda and Holistic Wellness:

One of the most prominent areas where the Indian Knowledge System (IKS) demonstrates global relevance is in health and wellness. Ayurveda, a traditional system of medicine originating in India, is gaining international recognition as a holistic and preventive approach to health. Unlike Western medicine, which often focuses on treating specific symptoms or illnesses, Ayurveda emphasizes maintaining balance by aligning the body, mind, and spirit.

Global interest in Ayurveda is growing due to a shift toward preventive and holistic health practices. In countries such as the United States and parts of Europe, the demand for alternative medicine is increasing, with Ayurveda playing a key role in this transition. Ayurvedic practices—including dietary modifications, herbal remedies, and stress management techniques—have been

found to complement conventional medical treatments, promoting long-term well-being and preventing lifestyle-related diseases.

Moreover, Yoga, a practice closely associated with Ayurveda, has become a global phenomenon. Yoga is widely practiced beyond its Indian origins, valued for stress reduction, mental health improvement, and physical fitness. Scientific validation of Yoga's mental health benefits, including its effectiveness in reducing anxiety and depression, has further fuelled its global adoption.

Overall, Ayurveda and Yoga exemplify how IKS contributes to global health systems by promoting preventive care, mind-body balance, and sustainable wellness practices.

IKS and Education: Holistic and Ethical Learning:

The educational philosophy embedded in IKS is increasingly relevant in today's globalized world. Traditional Indian educational systems, such as the Gurukul system, emphasized experiential learning, ethical development, and holistic growth. This contrasts with modern education systems, which are often compartmentalized and exam-driven. Ancient practices from IKS provide valuable insights into contemporary pedagogy, particularly in fostering not only cognitive skills but also emotional intelligence, creativity, and ethical reasoning.

Indian philosophies such as Vedanta, Jainism, and the teachings of Buddha promote values like compassion, self-awareness, non-violence (Ahimsa), and social responsibility (Dharma). Integrating these principles into modern curricula can support character development alongside intellectual growth. Educational institutions worldwide are increasingly incorporating aspects of IKS—such as mindfulness and meditation practices—to enhance students' emotional and psychological well-being.

Additionally, the focus on self-learning and inquiry in traditional Indian education aligns with contemporary global trends emphasizing inquiry-based learning and experiential approaches. These methods cultivate critical thinking and a deep understanding of concepts, essential skills in the 21st century. As globalization reshapes education, the values inherent in IKS—respect for diversity,

ethical responsibility, and interconnectedness—offer meaningful contributions to developing well-rounded individuals equipped for the challenges of the modern world.

IKS and Sustainability: Environmental Wisdom:

In the face of the growing environmental crisis, the Indian Knowledge System (IKS) offers valuable insights into sustainable living and ecological conservation. Traditional Indian ecological knowledge, deeply rooted in cultural practices, emphasizes the interdependence of humans and nature. Ancient texts such as the Vedas and the Puranas reflect a profound reverence for the natural world, advocating for sustainable agriculture, forest conservation, and the responsible use of natural resources.

Research indicates that many of these ancient practices align closely with modern sustainability principles. Traditional Indian methods—including organic farming, crop rotation, and water conservation—are increasingly recognized as effective approaches to sustainable agriculture. Several case studies demonstrate that integrating these techniques into contemporary farming practices can significantly reduce the environmental impact of industrial agriculture.

The concept of Ahimsa (nonviolence), which extends to the protection of all living beings, has also inspired environmental movements such as the Chipko Movement, where local communities actively resisted deforestation to protect forests. Ethical principles like Ahimsa and Dharma advocate for harmonious coexistence with nature, promoting ecologically responsible and sustainable practices.

Globally, the adoption of IKS-based practices—such as sustainable agriculture, organic food production, and forest conservation—is contributing to the broader movement toward ecological sustainability. As climate change and environmental degradation continue to threaten ecosystems, integrating IKS into contemporary environmental policies provides a pathway toward more sustainable and ethically grounded ways of living.

IKS and Globalization: Preserving Cultural Identity:

Globalization often results in cultural homogenization, where dominant global cultures and knowledge systems can overshadow

local traditions. In this context, IKS plays a crucial role in preserving cultural identity and promoting the diversity of human knowledge. While global integration enables the exchange of ideas and resources, it also poses the risk of erasing unique cultural identities and indigenous knowledge.

Integrating IKS into global frameworks offers an opportunity to safeguard and promote the richness of Indian culture, philosophy, and traditional knowledge. Efforts to preserve ancient texts, such as the Vedas, Upanishads, and Puranas, alongside documentation and promotion of traditional practices, have become central to scholarly and cultural preservation initiatives. The global popularity of Yoga and Ayurveda has helped position these practices as valuable global assets while simultaneously preserving and sharing the cultural heritage they embody.

Moreover, IKS provides an alternative perspective to dominant Western-centric knowledge frameworks, which often prioritize materialism and individualism. Indian philosophies—such as Vedanta and the teachings of Mahatma Gandhi—emphasize values like compassion, interconnectedness, and collective well-being. These principles offer a more inclusive and ethical worldview, presenting alternatives to the profit-driven, competitive values prevalent in modern global societies. By promoting social responsibility, ethical decision-making, and respect for cultural diversity, IKS contributes to addressing pressing global challenges such as inequality, poverty, and social justice.

IKS and Technology: Complementing Modern Scientific Knowledge:

The research indicates that while the Indian Knowledge System (IKS) is deeply rooted in traditional wisdom, it does not reject modern scientific advancements. Instead, IKS can complement contemporary science and technology by providing alternative perspectives, particularly in health, medicine, and environmental conservation. For example, the use of herbal remedies and natural treatments in Ayurveda can be integrated with modern pharmacology to develop more holistic and effective healthcare solutions.

Similarly, traditional Indian approaches to astronomy, which emphasized systematic observation and the study of the cosmos, exhibit parallels with modern scientific inquiries into the universe.

Ancient texts such as the Surya Siddhanta contain sophisticated astronomical knowledge that aligns closely with contemporary findings. These examples illustrate how IKS can interact with and enhance modern scientific understanding, bridging the gap between traditional wisdom and contemporary technological practices.

Challenges in Integrating IKS into Global Frameworks

Despite its relevance, several challenges hinder the full integration of IKS into global knowledge systems. One major obstacle is the commercialization and misinterpretation of IKS-based practices. The worldwide popularity of Yoga and Ayurveda has often led to their commodification, stripping these practices of their original cultural and philosophical context. This process risks distorting the essence of IKS and undermining its integrity.

Additionally, formal recognition of IKS within global education systems and scientific institutions remains limited. The dominance of Western knowledge systems, coupled with perceptions that traditional knowledge is outdated or unscientific, has slowed the widespread adoption of IKS in modern frameworks. Successfully incorporating IKS requires cross-cultural dialogue and respectful knowledge exchange, ensuring that traditional wisdom is recognized not merely as a historical relic but as a dynamic, evolving system capable of contributing meaningfully to contemporary challenges.

Conclusion:

In conclusion, the findings of this research demonstrate that the Indian Knowledge System offers valuable contributions to global challenges in health, education, sustainability, and ethical governance. Despite the difficulties of integrating IKS into contemporary global frameworks, its relevance in the age of globalization remains undeniable.

By embracing IKS, the global community can adopt more sustainable, ethical, and holistic approaches to address pressing issues that threaten the future of humanity. To ensure the continued relevance of IKS, it is essential to preserve its integrity, promote its thoughtful integration into modern practices, and encourage respectful cross-cultural exchanges that honour the depth and wisdom of traditional knowledge systems.

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20.

Geography and the Indian Knowledge System: Reinterpreting Indigenous Spatial Wisdom

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1. Introduction

Geography examines the relationship between humans and their environment through spatial patterns and ecological processes. In recent years, scholars have increasingly recognized that valuable knowledge about landscapes and environmental management also exists within indigenous communities and their cultural traditions, which form an important part of the Indian Knowledge System (IKS) (Berkes, 2018). This knowledge has developed over centuries through continuous interaction with local environments and includes practices related to agriculture, water management, biodiversity conservation, and sustainable resource use.

Within this framework, indigenous spatial wisdom refers to the traditional understanding of landscapes and ecosystems developed by communities through lived experience. In India, communities such as the Bishnoi of Rajasthan, the Santhal with their sacred groves, and Himalayan villagers involved in the Chipko movement demonstrate how traditional knowledge contributes to environmental conservation and sustainable resource management (Gadgil & Guha, 1995; Guha, 2000). From a geographical perspective,

integrating such knowledge with modern approaches can support more sustainable environmental planning and development.

2. The Indian Knowledge System (IKS)

The Indian Knowledge System (IKS) refers to the vast body of knowledge that has developed in the Indian subcontinent through centuries of observation, experience, and interaction with nature. It includes knowledge related to agriculture, water management, medicine, architecture, and environmental conservation, preserved through both classical texts such as the Vedas and Vastu Shastra as well as through oral traditions within local communities (Berkes, 2018). Indigenous and tribal societies across India have maintained valuable ecological knowledge about forests, biodiversity, and natural resource management through these traditional systems.

A key feature of IKS is its holistic understanding of nature, where humans are considered an integral part of the natural environment. Cultural traditions, religious beliefs, and community institutions often regulate how natural resources are used and protected. Practices such as sacred grove conservation, traditional rainwater harvesting systems in Rajasthan, and community-based forest protection movements like Chipko demonstrate how IKS promotes sustainable resource management and environmental ethics (Gadgil & Guha, 1995). From a geographical perspective, these practices illustrate the close relationship between culture, ecology, and spatial organization in Indian landscapes.

3. Concept of Spatial Wisdom

Spatial wisdom refers to the traditional knowledge through which communities understand, organize, and interact with their surrounding landscapes. It reflects how people use land, water, forests, and other natural resources based on long-term observation and experience. Unlike modern planning systems that rely mainly on scientific models, indigenous spatial wisdom is developed through everyday practices, cultural traditions, and collective knowledge passed from one generation to another.

From a geographical perspective, spatial wisdom shapes how communities manage their environment and create sustainable landscapes. It is reflected in traditional land use practices, water

conservation systems, forest protection, settlement planning, and biodiversity management, which help maintain ecological balance and support sustainable livelihoods.

Components of Spatial Wisdom

Ecological Knowledge:

This refers to the understanding communities have about local ecosystems, including climate patterns, soil conditions, plant species, and wildlife behavior. For example, farmers in dry regions often predict rainfall through natural indicators such as wind patterns and animal behavior.

Resource Management Practices:

Indigenous communities develop sustainable methods to use natural resources without degrading them. Practices such as mixed cropping, rotational grazing, and traditional water harvesting systems help maintain soil fertility and ensure long-term resource availability.

Cultural Landscapes:

Spatial wisdom also creates cultural landscapes where natural features and cultural practices are closely connected. Examples include sacred groves, community forests, and traditional agricultural terraces that reflect both ecological and cultural values.

Adaptive Strategies:

Communities develop strategies to cope with environmental challenges such as droughts, floods, or climate variability. For instance, terrace farming in mountainous regions reduces soil erosion, while drought-resistant crops are cultivated in arid areas to ensure agricultural sustainability.

4. Geographical Perspective on Indian Knowledge System and Spatial Wisdom

From a geographical perspective, the Indian Knowledge System (IKS) and spatial wisdom explain how communities understand and manage their environment based on local ecological conditions. Indigenous societies develop practices related to land use, water conservation, and settlement planning that are closely adapted to

climate, soil, and available resources. These practices emerge from long-term interaction between humans and their surrounding landscapes and demonstrate how geographical knowledge evolves through experience and observation (Berkes, 2018).

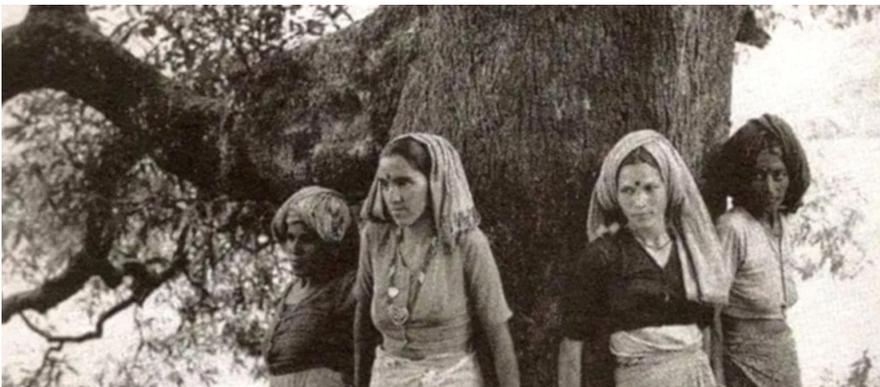
IKS also contributes to the creation of cultural landscapes such as sacred groves, traditional agricultural terraces, community forests, and water harvesting structures. These landscapes reflect the close relationship between culture and ecology and help maintain environmental sustainability. Traditional practices like johads in Rajasthan or terrace farming in mountainous regions show how indigenous communities adapt to environmental challenges while protecting natural resources and supporting sustainable livelihoods.

5. Indigenous Communities and Spatial Wisdom in India

Indigenous communities in India possess rich ecological knowledge developed through long-term interaction with their environments. Their traditional practices of land use, water management, and forest conservation reflect spatial wisdom and contribute to sustainable resource management (Berkes, 2018; Gadgil & Guha, 1995).

The following examples illustrate how different communities in India embody spatial wisdom through their traditional practices.

Chipko Movement and Himalayan Communities: The Chipko Movement emerged in the 1970s in the Himalayan region of Uttarakhand as a powerful example of community-based forest conservation. Local villagers, particularly women led by Gaura Devi, hugged trees to prevent them from being cut by commercial loggers.



Social activists such as Sunderlal Bahuguna and Chandi Prasad Bhatt helped bring national attention to the movement. It highlighted the ecological importance of forests for soil conservation, water resources, and local livelihoods, reflecting the indigenous understanding of the fragile Himalayan environment.

Bishnoi Community of Rajasthan: The Bishnoi community of Rajasthan is well known for its strong environmental ethics based on the teachings of Guru Jambheshwar in the 15th century. A famous example is the Khejarli incident of 1730, where 363 Bishnois sacrificed their lives to protect khejri trees from being cut. Even today, the community actively protects wildlife such as blackbuck and chinkara, showing how cultural beliefs help conserve biodiversity in the fragile desert ecosystem.

Santhal Community: The Santhal community, mainly found in Jharkhand, West Bengal, Odisha, and Bihar, has a close relationship with forests and agriculture. They protect sacred groves known as Jaher Than, which are forest patches dedicated to local deities. These groves act as community-protected areas that help conserve biodiversity and maintain ecological balance.

Meena and Other Tribal Communities of Rajasthan: The Meena community, mainly found in eastern Rajasthan, possesses traditional ecological knowledge adapted to semi-arid environmental conditions. Their agricultural practices include rainwater harvesting, mixed cropping, and community-based land management, which help sustain farming in areas with irregular rainfall and limited water resources. These practices reflect indigenous spatial wisdom by showing how local communities manage land and water according to regional climatic conditions.

Other tribal communities of Rajasthan such as the Garasiya, Damor, Kathodi, and Bhil also demonstrate strong ecological knowledge and environmental adaptation. These communities depend on a combination of agriculture, livestock rearing, and forest resources for their livelihoods. Their traditional practices include sustainable forest use, cultivation of drought-resistant crops, and knowledge of medicinal plants and seasonal ecological changes. Such practices reflect deep spatial understanding of local landscapes and

help maintain biodiversity and environmental balance in the tribal regions of Rajasthan.

Indigenous Communities of North-East India and Their Spatial Wisdom: North-East India is home to diverse indigenous communities such as the Naga, Khasi, Jaintia, Apatani, and Mizo, whose livelihoods are closely connected with forests, mountains, and high-rainfall environments. These communities demonstrate strong spatial wisdom through traditional practices such as jhum cultivation, sacred grove protection, and integrated farming systems. For example, Khasi and Jaintia communities conserve sacred groves that act as biodiversity-rich forest patches, while the Apatani tribe practices a sustainable rice–fish farming system in the Ziro Valley. Similarly, Naga and Mizo communities manage shifting cultivation and forest resources through traditional community institutions, reflecting a deep understanding of ecological balance and sustainable landscape management.

Toda Community (Nilgiri Hills, Tamil Nadu): The Toda tribe inhabits the Nilgiri Hills of southern India and is known for its traditional pastoral lifestyle centered around buffalo herding. Their settlements, grazing patterns, and sacred landscapes reflect deep knowledge of the mountain ecosystem. Toda communities traditionally manage grassland ecosystems of the Western Ghats, which helps maintain biodiversity and ecological balance in the region. Their cultural practices also protect certain forest patches and water sources.

Dongria Kondh (Odisha): The Dongria Kondh tribe lives in the Niyamgiri Hills of Odisha and is well known for their strong connection with forest landscapes. They practice traditional horticulture and shifting cultivation, growing diverse crops such as millets, fruits, and medicinal plants. Their sacred relationship with the Niyamgiri hills has helped protect forests and biodiversity in the region. The Dongria Kondh's resistance to mining projects has also become an important example of indigenous environmental protection.

Indigenous Communities of Andaman–Nicobar Islands and Their Spatial Wisdom: The Andaman–Nicobar Islands are home to several indigenous communities such as the Jarwa, Onge, Great

Andamanese, Sentinelese, and Nicobarese, who possess deep traditional ecological knowledge developed through long interaction with island environments. Their livelihoods are closely connected with forests, coastal ecosystems, and marine resources, and include activities such as hunting, fishing, forest gathering, and small-scale horticulture. These communities have strong knowledge of seasonal cycles, tidal patterns, forest biodiversity, and coastal resource management. Such practices reflect remarkable spatial wisdom, enabling them to adapt to fragile island ecosystems while maintaining environmental balance and sustainable use of natural resources.

6. Environmental and Cultural Protection through Indigenous Spatial Wisdom in India

Indigenous spatial wisdom in India, rooted in the Indian Knowledge System (IKS), has developed through long-term interaction between communities and their environments. Traditional practices of communities in regions such as the Himalayas, Rajasthan, North-East India, and the Andaman–Nicobar Islands help protect forests, water resources, and biodiversity. These practices not only support sustainable livelihoods but also preserve cultural traditions and maintain ecological balance.

Protection of Forest Ecosystems: Many indigenous communities protect forests through traditional practices. Examples include the Chipko movement in the Himalayas and sacred groves in North-East India, which help conserve biodiversity and maintain ecological balance.

Conservation of Wildlife and Biodiversity: Cultural beliefs often encourage wildlife protection. The Bishnoi community of Rajasthan protects animals such as blackbuck and preserves trees like khejri, helping maintain biodiversity in desert ecosystems.

Sustainable Management of Land and Water Resources: Indigenous communities use traditional techniques such as rainwater harvesting, terrace farming, and shifting cultivation with fallow cycles. These practices help conserve soil, manage water efficiently, and support sustainable agriculture.

Protection of Cultural Landscapes and Community Identity: Sacred forests, community lands, and traditional settlements represent cultural landscapes shaped by the interaction between humans and nature, preserving both ecological resources and cultural heritage.

Climate Adaptation and Environmental Resilience: Indigenous communities develop strategies to adapt to environmental challenges. For example, the Nicobarese build cyclone-resistant houses, while Himalayan communities follow farming practices suited to mountain environments.

7. Creation and Preservation of Indigenous Spatial Wisdom

Indigenous spatial wisdom develops gradually through long-term interaction between communities and their environment. It is shaped by community traditions, cultural values, and local ecological knowledge, and is preserved through the continuous transmission of knowledge from one generation to another. Traditional rules, sacred groves, and cultural beliefs help protect natural resources, while practical experience guides sustainable land, water, and forest management. Elders play an important role in passing this knowledge through oral traditions and daily practices.

In recent times, integrating indigenous knowledge with modern environmental policies has become important for sustainable development. Indigenous spatial wisdom offers valuable insights for biodiversity conservation, climate adaptation, and resource management. Combining traditional systems with scientific approaches can support more inclusive, effective, and environmentally sustainable strategies.

8. Conclusion

This chapter shows that spatial wisdom in India has grown naturally through the Indian Knowledge System (IKS), which developed from the close and continuous relationship between people and their environment. Communities living in different regions-such as mountains, deserts, forests, and islands-created important traditional practices to manage land, water, forests, and biodiversity. Their way of thinking reflects a deep respect for nature, where environment and culture are closely connected.

In today's time of climate change and environmental problems, this traditional knowledge is becoming even more important. Examples like the Bishnoi community, the Chipko movement, tribal groups, and island communities clearly show how indigenous wisdom helps in protecting nature and maintaining balance. By combining traditional knowledge with modern science, we can achieve more sustainable development and a better future for both people and the environment.

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21.

Indigenous Climate Knowledge and Weather Prediction

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1. Introduction

Weather and climate have always influenced the survival and development of human societies. In agrarian civilizations such as India, rainfall patterns, seasonal changes, and atmospheric conditions directly affect agricultural productivity, food security, and livelihood stability. Before the development of modern meteorological technologies, communities relied primarily on their own observations of nature to anticipate climatic variations.

Over generations, rural and indigenous societies in India developed practical systems of weather forecasting that were closely connected with their natural surroundings. These systems are part of the broader framework of the Indian Knowledge System, which encompasses traditional knowledge accumulated through observation, experience, and cultural transmission. Indigenous climate knowledge reflects a deep understanding of environmental processes and local ecosystems.

In the discipline of Geography, such knowledge systems represent an important form of environmental perception. They illustrate how human communities interpret climatic signals from landscapes, vegetation, wildlife, and celestial phenomena. Unlike modern meteorological forecasting, which relies on instruments and

numerical models, indigenous forecasting practices depend largely on ecological indicators and seasonal rhythms.

In recent decades, growing concerns about climate change have renewed interest in traditional knowledge systems. Scientists and policy makers increasingly recognize that indigenous climate knowledge can provide valuable insights into localized environmental conditions and long-term climate variability. Documenting and preserving this knowledge is therefore essential for sustainable environmental management and community resilience.

2. Understanding Indigenous Climate Knowledge

Indigenous climate knowledge refers to the collective understanding developed by communities through continuous interaction with their surrounding environment. It consists of observations, beliefs, practices, and interpretations related to weather patterns, seasonal cycles, and ecological processes.

This knowledge has several distinctive characteristics:

2.1 Localized Nature

Traditional weather knowledge is highly specific to particular geographical regions. Communities interpret climatic signals based on local ecological conditions, which means that forecasting indicators may vary from one region to another.

2.2 Long-Term Experience

Indigenous knowledge develops gradually through repeated observation of environmental patterns over many generations. The reliability of such knowledge often stems from centuries of accumulated experience.

2.3 Holistic Environmental Perspective

Traditional forecasting does not isolate atmospheric processes from other environmental components. Instead, it recognizes interconnected relationships between soil, vegetation, animals, water bodies, and climatic factors.

2.4 Oral Transmission

Most indigenous knowledge systems are transmitted through

storytelling, cultural rituals, and practical learning within families and communities.

From a geographical perspective, indigenous climate knowledge represents an adaptive strategy that enables communities to respond effectively to environmental variability.

3. Historical Foundations of Weather Knowledge in India

The historical roots of weather prediction in India can be traced to ancient intellectual traditions that combined astronomy, agriculture, and environmental observation. Scholars and farmers alike sought to understand seasonal cycles in order to improve agricultural productivity and social planning.

Early references to climatic understanding appear in classical Sanskrit texts such as the *Arthashastra*, which discusses rainfall patterns and their implications for agriculture and state administration. These discussions demonstrate that rainfall variability was recognized as a crucial factor in economic planning.

Another significant source of traditional meteorological knowledge is the *Brihat Samhita*, written by the scholar Varahamihira. This text contains extensive observations on clouds, atmospheric phenomena, and celestial indicators associated with rainfall.

Ancient scholars often linked climatic patterns with astronomical cycles. Observations of planetary movements, star positions, and lunar phases were believed to influence rainfall patterns and seasonal transitions. Although modern science interprets these relationships differently, these observations demonstrate an early attempt to understand environmental regularities.

The diversity of India's physical landscapes—from the snow-covered regions of the Himalayas to tropical coastal zones and desert environments—encouraged the development of multiple regional forecasting traditions.

4. Natural Indicators Used in Traditional Weather Forecasting

Indigenous weather prediction relies on careful observation of natural indicators that signal changes in atmospheric conditions.

These indicators often involve biological, astronomical, and meteorological cues.

4.1 Animal Behavior as Climatic Indicators

Animals are extremely sensitive to changes in environmental conditions such as humidity, temperature, and air pressure. As a result, their behavior can provide clues about impending weather changes.

Traditional communities often interpret the following behaviors as forecasting signals:

1. Birds flying unusually low before rainfall
2. Frogs croaking intensely during humid evenings before the onset of monsoon
3. Ants building raised nests before heavy rainfall
4. Certain insects appearing in large numbers during particular seasons

These behavioral responses reflect biological adaptation to atmospheric variations.

4.2 Plant Phenology and Seasonal Changes

Plant life cycles are closely tied to climatic conditions, making vegetation an important indicator of seasonal transitions.

Farmers frequently observe:

1. Early flowering of specific trees
2. Sudden leaf shedding
3. Timing of fruit ripening
4. Emergence of new shoots

Such observations help farmers anticipate rainfall timing and adjust planting schedules accordingly.

4.3 Atmospheric Signs and Cloud Patterns

Visual observation of the sky is another widely used forecasting method.

Traditional weather observers interpret various atmospheric signs, including:

1. Shape and movement of clouds
2. Color changes during sunrise and sunset
3. Halo formation around the moon
4. Sudden shifts in wind direction

Certain cloud formations are commonly associated with approaching storms or rainfall.

4.4 Astronomical Observations

Celestial phenomena also play a role in traditional forecasting practices. Farmers and astrologers observe lunar cycles, star positions, and seasonal constellations to determine favorable agricultural periods.

These astronomical observations form the basis of many traditional agricultural calendars used throughout rural India.

5. Indigenous Understanding of the Monsoon

The monsoon system is the most important climatic feature influencing the Indian subcontinent. Seasonal monsoon winds bring the majority of annual rainfall, making accurate predictions crucial for agricultural planning.

Communities across India have developed their own techniques for predicting monsoon arrival and intensity. These techniques involve monitoring environmental indicators such as:

1. Direction and strength of seasonal winds
2. Rising humidity levels
3. Migratory bird patterns
4. Ocean wave movements

In southern coastal regions like Kerala, fishermen closely observe sea conditions to anticipate storms and monsoon onset. Such

observations help protect lives and property while supporting traditional livelihoods.

6. Regional Variations in Indigenous Weather Knowledge

Because India encompasses diverse climatic regions, weather prediction practices vary significantly across different ecological zones.

6.1 Mountain Communities

In mountainous areas such as Uttarakhand, local communities interpret weather signals from snow accumulation, wind direction, and animal movements.

Pastoral communities often rely on these observations to plan seasonal migration routes and grazing periods.

6.2 Desert Regions

In arid regions like Rajasthan, predicting rainfall is particularly important due to scarce water resources.

Traditional forecasting methods include observing:

1. Wind patterns
2. Cloud thickness
3. Behavior of desert animals
4. Insect activity before rainfall

These indicators help farmers determine when to sow drought-resistant crops.

6.3 Coastal Communities

Fishing communities living along India's extensive coastline rely heavily on environmental cues to predict storms and ocean conditions.

Fishermen monitor:

1. Wave height
2. Wind intensity
3. Fish migration patterns

4. Cloud formations over the sea

These observations guide decisions about fishing trips and maritime safety.

7. Role of Indigenous Climate Knowledge in Agriculture

Agriculture is the sector most dependent on weather conditions. Indigenous climate knowledge helps farmers manage climatic uncertainties by guiding agricultural practices.

Farmers use traditional forecasting systems to determine:

1. Sowing dates
2. Crop varieties suitable for seasonal conditions
3. Irrigation requirements
4. Harvesting periods

Seasonal calendars integrate ecological observations with astronomical cycles to organize agricultural activities. These calendars also support crop diversity, which enhances resilience to climatic variability.

8. Indigenous Knowledge and Climate Adaptation

Climate change has increased the unpredictability of weather patterns worldwide. Indigenous communities, however, have long experience in adapting to environmental fluctuations.

Traditional strategies for climate adaptation include:

1. Cultivation of drought-resistant crops
2. Crop diversification
3. Soil moisture conservation techniques
4. Community-based risk sharing.

Indigenous climate knowledge therefore provides valuable insights for modern climate adaptation strategies.

9. Threats to Indigenous Climate Knowledge

Despite its importance, traditional weather knowledge faces several challenges in contemporary society.

9.1 Cultural Transformation

Urbanization and modernization have reduced the transmission of traditional knowledge between generations.

9.2 Environmental Change

Rapid climatic shifts may disrupt natural indicators that communities historically relied upon.

9.3 Lack of Documentation

Many traditional forecasting techniques remain undocumented and may disappear if not preserved through research and education.

Efforts to record and study indigenous knowledge are therefore crucial for safeguarding this cultural heritage.

10. Integrating Traditional Knowledge with Modern Science

Modern meteorology uses advanced technologies such as satellites, weather stations, and computer models to predict atmospheric conditions. While these tools provide valuable large-scale forecasts, they may not always capture local environmental variations.

Combining indigenous knowledge with scientific forecasting can improve climate prediction accuracy at the community level.

Potential approaches include:

1. Participatory research involving local communities
2. Documentation of traditional forecasting indicators
3. Collaboration between scientists and indigenous knowledge holders
4. Incorporation of traditional knowledge into climate policy frameworks

Such integration can strengthen climate resilience and promote sustainable environmental management.

11. Conclusion

Indigenous climate knowledge represents an important component of humanity's environmental heritage. Developed through

generations of observation and experience, traditional forecasting systems provide valuable insights into local climatic processes.

Within the broader framework of the Indian Knowledge System, these practices illustrate the deep relationship between culture, environment, and sustainability. Although modern meteorology has transformed weather forecasting, indigenous knowledge continues to offer localized and context-specific understanding of climate variability.

Recognizing and preserving traditional weather knowledge is essential for strengthening climate adaptation strategies and ensuring sustainable development. By combining scientific innovation with traditional wisdom, societies can develop more effective responses to the challenges posed by climate change.

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22.

Astrology and the Indian Knowledge System in the Contemporary World

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India possesses one of the oldest intellectual traditions in the world, commonly referred to as the Indian Knowledge System (IKS). This system encompasses diverse branches of knowledge, including philosophy, mathematics, linguistics, medicine, astronomy, and environmental sciences. These disciplines evolved through centuries of observation, experimentation, and philosophical reflection.

Astrology, known as Jyotisha, forms a vital component of this knowledge tradition. The Sanskrit term “Jyotisha” derives from jyoti, meaning “light” or “celestial body.” The discipline studies planetary movements, constellations, and cosmic cycles, and their relationships with human life and natural events.

In the Vedic tradition, Jyotisha was considered essential for determining the appropriate timing of rituals, agricultural activities, and social events. Ancient scholars described it as the “eye of the Veda” because accurate astronomical calculations were necessary for maintaining the ritual calendar.

In contemporary India, astrology continues to influence social and cultural practices. At the same time, it has become the subject of academic debates, scientific inquiry, and technological innovation. This research paper examines the relevance of astrology within the Indian Knowledge System in the present context.

The main objectives of this research are:

1. To examine the historical development of astrology within the Indian Knowledge System.
2. To understand the philosophical and scientific foundations of Jyotisha.
3. To analyse the role of astrology in contemporary Indian society.
4. To explore the challenges and prospects of astrology in the modern academic and scientific environment.

This study is based on qualitative and descriptive research methodology. The research relies primarily on secondary sources, including classical texts, scholarly articles, books, and publications on the Indian Knowledge System and astrology.

Historical texts, academic journals, and interdisciplinary research papers have been examined to understand the development and contemporary relevance of Jyotisha. The study adopts an analytical approach to evaluate the relationship between traditional knowledge and modern perspectives.

Historical Development of Astrology in India

Astrology in India has its roots in Vedic literature, which contains numerous references to celestial bodies, seasons, and cosmic cycles. Early observations of the sky led to the development of systematic astronomical knowledge.

One of the earliest texts on Indian astronomy and astrology is the Vedanga Jyotisha, attributed to the sage Lagadha. This text provided mathematical methods for calculating lunar and solar cycles and determining the correct timing of Vedic rituals.

During the classical period of Indian science, several scholars made significant contributions to astronomy and astrology. Among them were:

- Aryabhata (476 CE) – Developed mathematical models for planetary motion.
- Varahamihira (505–587 CE) – Authored Brihat Jataka and Brihat Samhita, major texts on astrology.
- Brahmagupta (598 CE) – Introduced important mathematical concepts related to astronomy.
- Bhaskara II (1114 CE) – Wrote works on astronomical calculations and planetary movements.

These scholars integrated mathematical techniques with astronomical observations, creating a sophisticated system of celestial science.

Structure and Branches of Jyotisha

Traditional Jyotisha is divided into three major branches:

- Siddhanta : This branch deals with astronomical calculations, including planetary motion, eclipses, and calendrical systems.
- Hora : Hora refers to predictive astrology, which involves the analysis of birth charts (kundali) to understand individual life patterns.
- Samhita : This branch focuses on mundane astrology, including predictions related to weather patterns, political changes, natural disasters, and agricultural cycles.

Together, these branches represent a comprehensive system that integrates astronomy, mathematics, and social observation.

Astrology and Other Disciplines in the Indian Knowledge System

- **Astrology and Mathematics** : Indian astronomers developed advanced mathematical tools such as trigonometric tables and algorithms for calculating planetary positions. These mathematical innovations contributed significantly to the development of early scientific knowledge.
- **Astrology and Ayurveda** : In traditional Indian medicine, planetary positions and seasonal cycles were sometimes considered while determining treatment timings and lifestyle practices.
- **Astrology and Cosmology** : Indian cosmology emphasises the interconnectedness of the universe. Concepts such as Rta (cosmic order) and karma reflect the belief that cosmic forces influence natural and human processes.

Astrology in the Current Scenario

1. **Social and Cultural Influence** : Astrology continues to play a major role in Indian society. It is commonly used in:
 - Marriage compatibility analysis
 - Selection of auspicious times for ceremonies
 - Business and career decisions
 - Festival and religious calendar calculations.
2. **Digital Transformation** : Modern technology has significantly transformed the practice of astrology. Today, astrology is widely accessible through:
 - Online horoscope platforms
 - Mobile astrology applications
 - Artificial intelligence-based prediction tools
 - Digital Panchanga and astronomical software.

These technologies have expanded the reach of astrological services to a global audience.

3. Academic Recognition

In recent years, several universities and research institutions have introduced courses related to the Indian Knowledge System, including studies of traditional astronomy and astrology. Scholars are exploring these disciplines from historical, cultural, and scientific perspectives.

Despite its cultural significance, astrology remains a subject of criticism within the scientific community. Critics argue that astrological

predictions lack empirical evidence and controlled experimental validation.

However, supporters emphasise that astrology historically contributed to the development of astronomy, mathematics, and calendar systems. Many scholars, therefore, recommend studying astrology as part of the history of science and cultural heritage.

Future Prospects

The future of astrology within the Indian Knowledge System depends on constructive engagement with modern science and technology. Some important directions include:

- Digital preservation of ancient manuscripts
- Interdisciplinary research combining astronomy, philosophy, and cultural studies
- Development of standardised academic programs
- Encouraging critical and evidence-based studies.

Such initiatives can assist in safeguarding India's intellectual heritage while encouraging academic exchange.

Conclusion

Astrology, or Jyotisha, has been an important component of the Indian Knowledge System for thousands of years. Emerging from Vedic traditions, it developed into a complex discipline integrating astronomy, mathematics, philosophy, and cultural practices.

In the contemporary scenario, astrology continues to influence social traditions while also transforming digital technology and academic research. Although it faces criticism from modern scientific perspectives, its historical contributions and cultural significance remain undeniable.

A balanced approach that combines traditional wisdom with modern scientific inquiry can help ensure that astrology continues to be studied as a meaningful part of India's intellectual and cultural heritage.

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23.**Exploring the Emergence and Evolution of Environmental Conservation Principles in the Indian Knowledge Tradition****Md Asif**Research Scholar
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Environmental conservation is a global concern in the 21st century, with the need to address climate change and biodiversity loss becoming increasingly urgent. While modern environmental conservation principles have largely emerged from Western scientific traditions, it is essential to recognize that indigenous knowledge systems, such as those found in India, have long held their own principles of environmental conservation. This research paper aims to explore the emergence and evolution of environmental conservation principles in the Indian knowledge tradition. It delves into ancient Indian texts, philosophies, and practices to elucidate the rich heritage of environmental wisdom that has guided human-nature interactions in the subcontinent for millennia. By understanding and appreciating these principles, we can gain valuable insights for contemporary environmental conservation efforts.

Environmental conservation is a critical global issue in the present era, driven by concerns about climate change, biodiversity loss, and the depletion of natural resources. While modern environmentalism often draws upon Western scientific and philosophical traditions, it is vital to acknowledge the presence of rich and ancient knowledge systems in various parts of the world, including India. The Indian subcontinent has a long history of valuing and protecting its natural environment, as evidenced by its deep-rooted cultural, philosophical, and religious traditions. This research paper aims to explore the emergence and evolution of environmental conservation principles in the Indian knowledge tradition.

Objectives

To examine the historical and cultural roots of environmental conservation in India.

To analyse the philosophies, texts, and practices that have contributed to environmental conservation in the Indian context.

To identify key principles and values embedded in the Indian knowledge tradition that promote ecological sustainability.

To discuss the relevance of these principles in contemporary environmental conservation efforts.

Historical Context

The emergence of environmental conservation principles in the Indian knowledge tradition can be traced back thousands of years. India's history is marked by diverse civilizations, each contributing to the evolving relationship between humans and their environment. The early Indus Valley Civilization (circa 3300–1300 BCE) provides evidence of sophisticated urban planning that included sanitation systems, suggesting a concern for cleanliness and public health, aspects of environmental conservation.

Vedic Period (1500–500 BCE)

The Vedic period in India laid the foundation for many of the environmental conservation principles that continue to influence the culture and philosophy of the subcontinent. The Vedas, the oldest

sacred texts of Hinduism, contain hymns and verses that express reverence for nature. Elements of these texts, such as the Atharva Veda, contain prayers for the well-being of the Earth and its creatures. The concept of 'Yajna' (sacrifice), which involved offering rituals to deities with reverence for nature, can also be seen as an early form of environmental consciousness.

Jainism and Buddhism

Two prominent religious traditions that emerged in ancient India, Jainism and Buddhism, emphasized non-violence (ahimsa) and the moral responsibility to avoid harming any living beings. These traditions encouraged vegetarianism and promoted practices of compassion towards all life forms. Jain monks, in particular, were known for their extreme dedication to non-violence, often wearing masks to avoid inhaling insects and sweeping the ground before them to avoid harming small creatures.

The Dharmic Traditions

Hinduism, Buddhism, and Jainism collectively form the dharmic traditions, which have played a significant role in shaping environmental conservation principles in India. Central to these traditions is the concept of 'Dharma,' which encompasses one's duty and moral responsibility towards all aspects of life, including the environment. Dharma emphasizes harmony with nature and advocates for responsible stewardship of the Earth.

Traditional Ecological Knowledge (TEK)

Traditional Ecological Knowledge (TEK) is a term used to describe the wisdom and practices developed by indigenous and local communities over generations. In India, various tribal and indigenous communities have developed TEK that aligns with sustainable environmental practices. These communities often have deep spiritual connections with their natural surroundings, fostering a sense of responsibility and respect for the environment.

Key Principles of Environmental Conservation in Indian Knowledge Tradition

1. Ahimsa (Non-Violence)

The principle of 'Ahimsa' is at the heart of Indian environmental ethics. Ahimsa, as practiced in Jainism and Buddhism, extends to all life forms, advocating for non-violence towards animals, plants, and even the Earth itself. This principle emphasizes the interconnectedness of all living beings and the importance of minimizing harm.

2. Respect for Nature as Divine

Many Indian traditions regard nature as divine. In Hinduism, for example, the Earth is often personified as 'Bhudevi' or 'Prithvi,' and rivers like the Ganges are revered as goddesses. This belief system instils a deep respect for nature and discourages exploitation.

3. Sustainable Resource Use

The concept of 'Dharma' includes responsible resource management. It encourages individuals to use natural resources judiciously and avoid overexploitation. Traditional practices such as 'Vanaprastha' (retiring to the forest) demonstrate an ancient form of sustainable living.

4. Preservation of Biodiversity

Indian cultures have a history of preserving biodiversity through sacred groves, community conserved areas, and rituals that protect specific species. These practices serve as early forms of conservation and acknowledge the importance of maintaining ecosystem diversity.

5. Harmony with Natural Cycles

Indian festivals and rituals are often aligned with natural cycles, such as the agricultural calendar or lunar phases. This alignment fosters an appreciation for the seasons and the interplay between humans and nature.

Evolution and Contemporary Relevance

The principles of environmental conservation in the Indian knowledge tradition have evolved over time and continue to hold contemporary relevance. While these principles were often deeply ingrained in traditional practices, they are also adaptable to address modern environmental challenges.

Contemporary Challenges

India, like the rest of the world, faces pressing environmental issues such as air and water pollution, deforestation, and climate change. The principles of environmental conservation from the Indian knowledge tradition offer insights into addressing these challenges.

Eco-Friendly Practices

Many traditional practices in India, such as organic farming, the use of natural materials in construction, and rainwater harvesting, align with modern eco-friendly approaches. These practices reduce the environmental footprint and promote sustainability.

Policy and Legislation

In recent years, India has implemented policies and legislation that reflect the importance of environmental conservation. The Wildlife Protection Act of 1972, the Forest Rights Act of 2006, and the National Green Tribunal Act of 2010 are examples of legal frameworks that aim to protect the environment and indigenous rights.

Education and Awareness

Efforts to educate the public about the importance of environmental conservation often draw upon the rich cultural and philosophical traditions of India. This includes promoting the values of ahimsa, respect for nature, and sustainable living.

Conclusion

The emergence and evolution of environmental conservation principles in the Indian knowledge tradition are deeply rooted in the country's historical, cultural, and philosophical contexts. The

principles of ahimsa, respect for nature as divine, sustainable resource use, preservation of biodiversity, and harmony with natural cycles continue to shape India's approach to environmental conservation.

In a rapidly changing world facing unprecedented environmental challenges, these principles offer valuable insights and guidance for sustainable living and responsible stewardship of the Earth. By recognizing and embracing the wisdom embedded in India's ancient knowledge systems, contemporary society can work towards a harmonious coexistence with nature, thereby contributing

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Importance of Nature and Water Conservation in Traditional Indian Knowledge and Its Relevance in current context

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“आपो अस्मान्मातरः शुन्ध्यन्तु घृतेन ना घृत्स्वः पुनन्तु।”

(Rigveda 10.17.10)

The above hymn from the Rigveda says that water is like our mother. Water (Ap in Vedic Sanskrit) should make us powerful and excellent as Ghee makes us. Such water needs to be protected in whatever form it is present and wherever it is present.

Simply put, Traditional Knowledge refers to the know-how, practices, and innovative means used by indigenous and local communities across the globe in furtherance of varied objectives. It is also often referred to as ethnoscience, i.e., the ‘stock of knowledge,’ comprising “systems of concepts, beliefs and ways of learning.” This form of knowledge is a cumulation of collective experiences, which are gained over the centuries and gradually adapted to the topographical and cultural needs.

How can indigenous knowledge be useful for conservation practices?

1. The guardian of this indigenous knowledge should share it with the younger generation so it could become socially distributed knowledge.
2. Awareness programmes for the local community are also mandatory so they can actively participate in the development process from the bottom line.
3. Creation of hybrid knowledge by the mix of rural traditional knowledge and govt. new technological innovation should be promoted together.

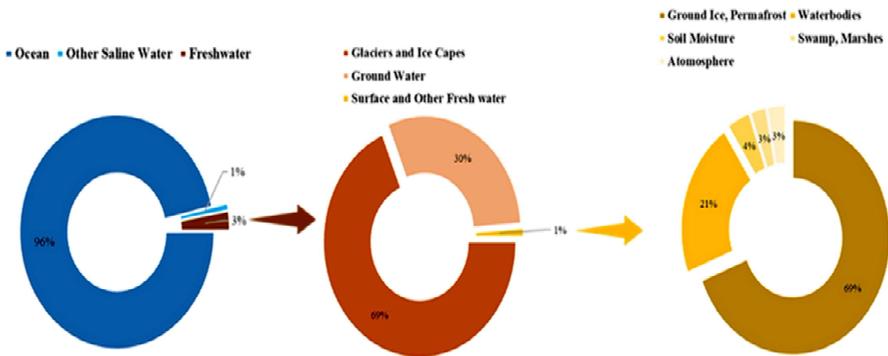


FIG.1 Global Water Distribution

Global status of water availability:- Around 70% of the earth is covered by water. The world's total water supply is about 332.5 million mi³ of water. More than 97 per cent of water available on earth is saline. In total freshwater, over 69 per cent is locked up in ice and glaciers and the other 30 per cent is in the ground, the remaining 1 per cent is surface and other fresh water. Most of the surface water used by humans comes from rivers, but rivers only constitute about 509 mi³ (2,120 km³), about 1/10,000th of one per cent of total water. (USGS, 2019)

Status of water availability in India:- India hosts approximately 17 per cent of the world's population, it holds only about 4 per cent of its required annual water resources. India annually receives 4000 billion cubic metres of precipitation and Central Water Commission states that our annual water need is around 3000 billion cubic metres.

But we are able to hold only 8% of that water. (Tayal, 2022) Population explosion and improved lifestyle are major causes of water stress in India. The scarcity is compounded further because of massive agricultural and industrial development coupled with improper and indiscriminately exploitation of groundwater resources.

India is blessed with the abundance of water resources and beautiful flora-fauna from the ancient time. Ancient rivers like Sindhu (Indus), Vitasta (Jhelum), Saraswati, Narmada, Kaveri, etc., snow-capped Himalayas, Monsoonal rains, plenty of lakes and waterfalls have irrigated our motherland from the time immemorial.

Although there is no dearth of water resources and probable dark clouds on nature (as of now) in the past, but still our ancient scholars like with Vedvyas, Tulsidas, Charak, Valmiki, Kautilya, etc. laid emphasis on their conservation. Because they truly understand its importance and knew that life is not possible without them.

Need of Nature and Water Conservation :-

- A. They are the crux of the biotic life on Earth planet. Without them, Life is impossible.
- B. Water is inevitable for industrial sector as well as domestic purposes.
- C. We breathe in the air and our body organs functions according to inhaling and exhaling in the nature.
- D. Soil is also the important part of nature. It forms the genesis of our food resources.
- E. Flora and Fauna are the two basic key elements of trophic chain. Without them, whole ecosystem will get vanished.
- F. Insolation is needed for our metabolism and various types of activities. It also creates the base to make life possible on the Earth.

Hence it is clear that nature which provides a lot of benefits to humankind without any payment should be taken care of and conserved at any cost if we want to make our planet liveable for our generation and future generations as well.

Some Traditional ways for Water Conservation :-

1. Zings are structures in Ladakh. These are small tanks that collect melted glacier water through channels.
2. Kuls are water channels found in precipitous mountain areas. They carry water from glaciers to villages.
3. Apatani, in eastern Himalayas, is a wet rice cultivation cum fish farming practices, to conserve the water by dual usage of the same water.
4. Cheo-ozihri structures in Nagaland brought down the river water by a long channel.
5. Vav/Baoli were secular structures from which everyone could draw water.
6. Kunds structures harvest rainwater for drinking in the desert areas of Rajasthan.
7. Khadin, also called Dhora, is an indigenous construction designed to harvest surface runoff water for agriculture.
8. Sazakuva, an open well with multiple owners, is an important method of water conservation.
9. The Ramtek Model is an ancient water harvesting structure in Maharashtra. It is an intricate network of groundwater and surface waterbodies, intrinsically connected through surface and underground canals.

Thus, it is clear from the above points, that our past generations were more serious about nature and water conservation. And due to this, we are currently utilizing these resources. This concept is known as “Sustainable Conservation of Resources”.



FIG.2 Traditional Water Conservation Practices

Nature

The culture of conservation of nature dates back to the ancient Vedic Period. The four Vedas — Rig-Veda, Sama-Veda, Yajur-Veda and Atharva-Veda — are full of hymns dedicated to the supremacy of various natural entities. The Rigvedic hymns refer to many gods and goddesses identified with sun, moon, thunder, lightning, snow, rain, water, rivers, trees etc. They have been glorified and worshipped as givers of health, wealth and prosperity. The rain-god Indra has the largest number of hymns attached to him.

Sun worship is of vital importance in Vedic worship; the sun was worshipped in the form of gods like Surya, Marta??a, U?a, Pu?an, Rudra, etc. Today it has been proved that solar energy is the ultimate source of energy that regulates the energy flow through the food-chain, drives various nutrient cycles and thus controls the ecosystem all over the earth, but it was probably well understood and realized by the ancient people as well. The Gayatri mantra of the Rig-Veda, which is chanted on every auspicious occasion, is full of praise for the sun. Similarly, the Atharva-Veda highlights the importance of nature and has a beautiful hymn in praise of the earth. With

remarkable foresight, Thiruvalluvar's Kural, an ancient text in Tamil from south India stresses the need to remain under nature's protection: 'Sparkling water, open space, hills and forests constitute a fortress.' Guru Granth Saheb states, 'Air is the guru, water is the father, and earth is the great Mother of all.'

Different traditional ways of the Nature Conservation

1. Flora and Fauna

Tress have also been given huge importance the ancient Indian tradition. The four Vedas are full of references to various herbs, trees and flowers and their significance. Trees and plants were considered as animate beings and to harm them was regarded as a sacrilege. The Atharva-Veda glorifies the medicinal value of various herbs. In the ancient texts we come across references to trees like kalpav?k?a and parijata with mythical powers. Padma (lotus) and trees like va?av?k?a (banyan), or flame of the forest (palasa in Hindi, Butea frondosa) were given special attention. The worship of the pipal tree (also known as Boddhi tree, asvattha in Sanskrit, Ficus religiosa) became a folk ritual, and the pipal was called the king of trees in Brahma Pura?a. In the course of time, many such plants and trees came to be associated with various gods and goddesses and were worshipped accordingly.



FIG.3 Traditional Nature Conservation Practices

2. Sacred Groves

The tradition of sacred groves was also common in the ancient period and is still practised by folk and tribal communities. A sacred grove consists of a bunch of old trees, generally at the outskirts of a village, which were left untouched when the original settlers cleared the forest to establish the village. Such groves were regarded as the abodes of gods and goddesses or spirits and hence protected with utmost care. The cutting of trees was prohibited in these areas and nobody dared to disobey the injunction, partly because of religious faith and partly due to the fear of facing the wrath of the gods, goddesses and spirits. In many sacred groves, villagers perform sacrifices and offerings to the gods during festivals and other occasions. This tradition of sacred groves could be matched with the contemporary notion of biosphere reserves.



FIG.4 Votive horses in a sacred grove, Madurai region

3. Wildlife

Wild animals and even domesticated ones were also given pride of place and respect in the ancient tradition. Many Hindu gods and goddesses have some particular animal or 6 bird as their vehicles or vahana. These include lion, tiger, elephant, bull, horse, peacock, swan, owl, vulture, ox, mouse, etc. The association of wild animals with peoples' religious beliefs played a significant role in their preservation for so very long in India, until the colonial rule indulged in intensive hunting. The feeling of sacredness attached to wildlife protected it and contributed to maintaining an ecological balance. For instance, the snake's association with god Siva and snake (or naga) worship was a conscious effort by our saints to preserve the animal, who otherwise incites fear and persecution because of its perceived venomous nature. In fact, snakes are an important link in the food cycle and play a significant role in maintaining the ecological balance.

Relevance in Current Context :-

According to the World Bank, India is the world's most important user of groundwater; moreover, if trends persist, an estimated 114 million Indians will soon face desperate domestic, agricultural and industrial shortages, serious implications for long-term food security, livelihoods, and economic growth. Half of the country's population does not have access to safe drinking water and around 2 lakhs people die every year due to this. Nearly 38 million Indians suffer from water-borne diseases while some 600,000 children under the age of five die due to deficient water supply and sanitation. (Daniel Rivière 2015).

According to a study by the Water Resource Group, water demand in India will double by 2030. About 4 crore Indians still have to travel about one kilometre for water daily. About 80% of our water requirement is related to agriculture, which is very important for the growing population of our country. According to the projected water demand by GOI, India faces a large gap between current supply and projected demand, amounting to more than double.

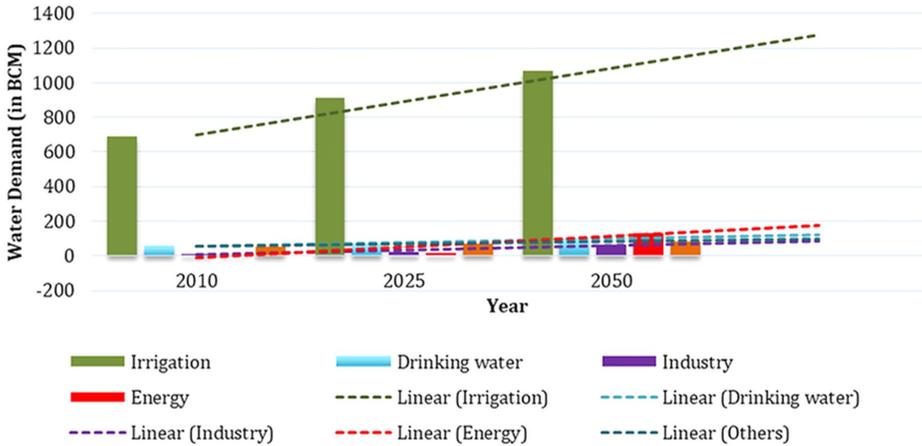


FIG.5 Projected Water Demand in Future

Thus, according to various researches, our water resource is depleting rapidly compare to its capacity to renew. So, its conservation is now of utmost importance. For this, our traditional conservation practices can be very helpful like construction of Kunds, Baoli etc. from which everyone could draw water and recharge it too.

Case Study of Gujarat

Scenario of Gujarat is also not much different from overall scenario of India. Out of its 1,96,000 square Kilometre of total area of the state, 96,000 square Kilometre is agricultural land but irrigation potential created by major and medium irrigation projects is only 28,000 square Kilometre till date. Variation in availability of surface water in river basins and rainfall variations do not allow sizable expansion. Government of Gujarat launched Sardar Patel Participatory Water Conservation Scheme in 2001 and got constructed about 40,000 check dams in about 5 years with the traditional concept and with participatory approach i.e., 60 % of the cost of each check dam was borne by the government and 40 % by the beneficiary farmers. The Indian Institute of Management, Ahmedabad conducted the detailed study of the results of this scheme. Important achievements of the scheme are following :-

- Average 7 wells in surrounding could be recharged.

- Ground Water Table came up between 3 and 9 meters.
- Soil fertility was improved.
- Quality of drinking water was improved.
- Electricity consumption for withdrawal of water was reduced.
- Overall prosperity increased in villages.
- The government had to make less expenditure compared to contract approach.
- Instant results were found.
- Change in attitude of people as well as government officers was witnessed.
- Where check dams are constructed, land prices have gone up by 20 %.
- Crop Yield has been improved by 35 %.
- Approximately 10 hectares of land is benefited by each check dam.
- 8 to 10 families should sustain.
- Control on salinity has been effectively done.



FIG.6 Well recharged in vicinity of check dam

Conclusion:- India is a country of masses but that does not mean every solution devised to address its need should be massive. India has survived the test of the time which means it has already obtained the solutions for different crises. In the present time when Western systems are believed to be the modern and most relevant, so far as the water sector is concerned, they have started exhibiting serious limitations and it is sure that they are not sufficient at least if not absurd or inappropriate now. The paradigm shift to distributed resource management system which is the most important basis of the traditional Indian water management and sharing methods is a viable way out and resurrection of the traditional Indian system is feasible and promising in the given situation. Case study of Gujarat is worth considering. They are not only sustainable but more effective, wholistic and without any ill effects. They are also healthy for the social fabric and India needs that today much more than it did ever in the past. Revival of traditional Indian systems is possible even today in the time of technology is proven by the case study of Gujarat.

“The earth, the land and the water are not an inheritance from our forefathers but on loan from our children. So, it is our responsibility to hand it over to the next generation at least as it was handed over to us.”

- Mahatma Gandhi



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