Article

Protection of Environment and Promotion of Development: The Hindu Wisdom of Sustainable Development

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Abstract

The Classical and Neo-classical mechanistic economic development models believed in the unlimited supply of natural resources and unlimited economic growth. The practice of these models since the 18 th century has resulted in severe depletion of resources and the degradation of society and the environment. Sustainable development has become the new global slogan for solving the above problems. Protection of the environment while promoting development is the crux of Sustainable Development. It is inclusive of the satisfaction of the needs of the present as well as the future generations. Scientific research, technological innovations, government policies and economic programmes are being adopted to achieve sustainable development at the national and international levels. But the success rate is limited. Scientists are now thinking of a paradigm shift by incorporating religious, cultural, and spiritual traditions and values. India has a rich tradition in environmental protection and development, thanks to her holistic vision and integrated approach realized through the Advaitha principle of Vedanta Philosophy. She could be the torchbearer in the global efforts to achieve sustainable development.

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Protecting the environment while promoting development is the crux of the most modern development paradigm of the 21st century. The 20th century witnessed the accelerated growth of the world economy, mainly through industrialization. This phenomenon resulted in the depletion of resources and the degradation of the environment. Environmental problems have become crises and hence the very condition of the living and many nonliving things on this planet have reached the edge of extermination.

From the local *Grama Sabhas* to the UN General Assembly, hundreds of summits, seminars, projects, and capacity building programmes are being conducted to deal with the problems of the dichotomy of development and environment protection. Economic programmes, government policies, scientific research, social evaluations, legal regulations, and popular movements are among the multi-dimensional attempts by public and private agencies all over the world to tackle the twin problems of resource depletion and environmental degradation. Most of these attempts are aimed at curative measures rather than on preventive actions. Although some policies, programmes and regulations seek to prevent environmental crimes, the impact has been comparatively low. The annual publications of the United Nations Environment Program (UNEP), United Nations Development Program (UNDP) and the Worldwatch Institute (WWI) reveal this fact. However, it is the state of mind that determines the state of society, which in turn determines the state of environment and development. Hence, it is time to focus on changing the individual mindset and dominant values and existing institutional mechanisms that determine the course of sustainable development.

PART 1

Mechanistic Attitude and Modern Development

During the 17th, 18th and 19th centuries, the conception of reality was based on a mechanistic view of the world. This mechanistic view was based on the mathematical theory of Isaac Newton, the Philosophy of Rene Descartes and the scientific methodology advocated by Francis Bacon. Bacon treated planet Earth as a mere object to be exploited and conquered by human beings. Isaac Newton considered the planet as a huge machine, which, if it goes out of order, could be repaired and if necessary, its parts could even be replaced. Descartes' philosophy of separation, deductive analysis and partial approach subsequently entered all branches of sciences and kept the study of every aspect of

nature in watertight compartments. It denied the opportunity for a holistic and integrated approach and resulted in super-specialty studies, forgetting the 'whole'. In Economics, this approach led to the over-exploitation of resources without caring for adverse consequences like pollution, deforestation, desertification, etc. Even if they happened, the Newtonian model suggested repairing and replacement of the natural system with the help of science and technology. Ultimately this led to an obsession with growth at any cost.

In this model, in reality, the scope of repairing and replacing natural resources is very limited. If a twenty-thousand-year-old forest is destroyed by the timber lobby, to a certain extent replanting the trees may be possible, but nobody can repair or replace the micro-organisms associated with the forest that sustains the ecological balance. The mechanistic attitude has already done enough damage to nature and natural resources. In the words of Fritjof Capra:

"In this approach, matter is regarded to be the basis of all existence and the material world is seen as a multitude of separate objects assembled into a huge machine. As a result, the complex phenomenon of this world could be understood by reducing them to their basic building blocks and by looking for the mechanisms through which they interacted. This attitude known as 'Reductionism' has become so deeply ingrained in our culture that it is often identified with the scientific method. Initially, the physical sciences, especially Physics, relied fully on this mechanistic method. Gradually, other branches of knowledge-Psychology, Sociology, and Economics - also accepted and adopted the mechanistic reductionist views of classical Physics as the correct description of reality and modelled their theories based on the concept of 'Newtonian Physics".[1]

Traditional Economics took into consideration only the scale of operations of individual producers and consumers. Although Adam Smith, Ricardo and Malthus were aware of the natural limits to growth, they considered economic operations too small to exert any pressure on the natural environment. The Neo-classical economists treated natural resources like air and water as free goods of nature, which are abundant in supply and outside the realm of economics and had no economic value or price.

Thomas Prugh[2] deals with four cardinal features of the Neo-classical tradition in

treating the environmental factor in economic activity. In this tradition, environment is considered only as a part of the economy, not economy as a part of environment. The features are:

- There can be unlimited substitution for nature and natural capital with human made capital. Nobel Laureate in Economics Robert Solow even said that the world could get along without natural resources.
- Conservative Economists like C. Fred Bergsten believed that technology would finally solve all economic problems.
- The Neo-Classical belief that 'sum total of individual welfare is equal to social welfare' led to the discarding of interactions, interrelations, and interdependence among people and between man and nature.

The Keynesians also firmly believed in the insulation of economics from other subjects and propagated economic solutions like aggregate demand, aggregate supply, multiplier effect, etc., to solve economic problems. The post–Keynesian economists who advocated the Supply-Side Economics argued that the supply of commodities should be stimulated "by investing more in factories and automation and by removing unproductive environmental controls. This approach is manifestly anti-ecological, likely to result in rapid exploitation of natural resources and is bound to aggregate our problems".[3]

This disregard for the environment is mainly due to the mechanistic attitude generated by modern science.

The recent liberalization, globalization and privatization policies also treat environment as an externality that decelerates the momentum of profit-making and economic growth. This disregard for the environment is mainly due to the mechanistic attitude generated by modern science in every walk of life. It has caused heavy damage to the society and environment in the form of wars and manmade natural calamities.

Dangers of the Mechanistic Model of Development

Although, the world today is more prosperous and more peaceful than in the 20th Century and earlier, it is struggling to overcome rampant individual and group violence, poverty, rising inequality, authoritarianism, extremism, the threat of war, climate change

and multiple health problems. The problems are not unrelated to the mechanistic developmental models and values that shape them. The impact on humans and nature can be seen in the following:

- The global military expenditure in 2021 has risen to $2,113 billion, according to the 2022 Report released by the Stockholm Peace Research Institute, as national insecurities, territorial ambitions, terrorism and extremism, and desire for imperial control create deep instabilities, insecurity, tensions, and war.
- Some 1.4 million violence-related deaths are happening every year. For every death from violent conflicts, 40 times as many people are injured. There is also proportional loss of man-hours, reduction in productivity, employment, income, etc., resulting in misery and poverty.
- The American epidemic of gun violence has become a headache. The US is the home of 5% of the world's population but accounted for 31% of the public mass shootings worldwide between 1966 and 2012. The trend is still continuing.
- One in six students are sexually assaulted in MIT, lamented MIT President Rafael Rief in a campus e-mail on 27th October, 2014. This means that temples of knowledge have ceased to be centres of wisdom.
- When the lifestyle is claimed to have improved, lifestyle diseases like Aids, cancer, heart attack, high tension, diabetes, etc., are also accompanying the improvement.
- Pollution of air, water, soil, carbon emissions, global warming, climate change, deforestation, desertification, ozone depletion, toxic wastes and other environmental problems are hindering development.

  Damage done to Earth by human activity was estimated by UNEP to be between $2 trillion and $ 4.5 trillion in 2008.
- The 2022 Special Report on Human Security (New Threats to Human Security in the Anthropocene) reveals that 'six in seven people worldwide were plagued by feelings of insecurity, even before the Covid pandemic hit'.[4]

All wars first break out in human minds. In spite of all the material progress, if human beings do not feel secure, then their mindset and approach towards life must be

responsible for the pathetic condition. Along with science and technology, therefore, ethical and moral values should occupy an important place in decision-making. Sustainability of qualitative development is ultimately not only a question of Science, Technology and Governance, but it is also a question of Morality, Ethics, Religion and Spirituality. The above conditions reveal that the progress that we boast of is an inflated and unsustainable one and a paradigm shift in human outlook is a must for survival in future.

Paradigm Shift

In the 21st century, the modern scientific community is becoming aware of the limitations of the mechanistic view. To provide a complete and definitive description of reality, the rational mind and scientific theories are necessary but not sufficient. In quantum physics the image of the world as a machine has been transcended by a view of it as one indivisible, dynamic whole whose parts are essentially interrelated and can be understood only as patterns of a cosmic process. The scientific, rational, and reductionist approaches to understand reality are being replaced by the intuitive, integrated, and holistic approach. This holistic approach does not recognize the antagonistic attitude of man towards nature but instead encourages and emphasizes a harmonious relationship. Everything is interrelated, interconnected and interdependent and viewed as a system. Hence, while trying to find out solutions for the present world crisis, moral, ethical, and spiritual values also are necessary along with science, technology, and economics. The concept of sustainable development encompasses all these.

The 'Global Ethic' proposed at the Parliament of World's Religions in Chicago in 1993—marking the centenary of the first Parliament in 1893 in which Swamy Vivekananda made his pathbreaking speech on inter-faith harmony and Hindu philosophy-- suggested a holistic path towards sustained progress in the world. The Brundtland Commission Report (1987), which introduced the concept of Sustainable Development, also stressed the need for incorporating moral and spiritual aspects into the thinking about development. Science and technology, politics, policy and governance are necessary conditions for designing, framing and guiding development activities. However, the ultimate factor that determines the destiny of society is the state of mind of the people. The state of mind and activities of about 80 percent of the world population are influenced by religious and spiritual culture.[5] Hence, keeping the balance

between environment and development and promoting peace and harmony in society are also cultural and religious issues.

The World Bank President, James David Wolfensohn in 1998 called for the intermeshing of spiritual and economic concerns. After visiting several developing countries, he said: "These visits have brought home to me that the central mission is to weld economic assistance with spiritual, ethical and moral development". In February 1998, Wolfensohn and the Archbishop of Canterbury organized a meeting of World Faiths and Development Dialogue, where leaders of nine religions of the world assembled to discuss spirituality and economic development. The discussions of the meeting revealed that development economists would now like to adopt a new holistic development paradigm that encompasses material and spiritual aspects of human life.

The UN experts have initiated new studies in which they demand an active role of spirituality and culture in defining and formulating sustainable development models. "Nurturing the values, wisdom and practice of our spiritual traditions and harmony between them" are decisive factors of most modern development models.[6] Further, it observed that: "Apart from the economic, social and environmental pillars of sustainability, there is a 'missing pillar' that is a fourth pillar of sustainability which has been variously described as Cultural–Aesthetic, Political–Institutional or Religious-Spiritual dimension".[7] The Interreligious Statement to the UN Conference on Sustainable Development held in 2012, also called the Rio +20 conference, was developed by religious and spiritual leaders from diverse traditions. It described ethical/spiritual consciousness to be the foundation for the three other pillars of sustainability: Economic, Environmental and Social sustainability.[8] The modern world dismissed religious rituals as superstition. But Anthropologists find that the skilled use of rituals had made many traditional societies far more successful in caring for their environment than the industrial societies. According to cultural ecologist E. N. Anderson, rituals forged emotional connections with the natural world.

Sustainable Development: The Post-Modern Solution

The adverse impacts of modern development reveal that humanity should search for an alternate paradigm of development. No development is possible without natural

environment and resources. "The term environment includes air, water, land and the interrelationship that exists among and between air, water and land, human beings and other living creatures, plants, micro-organisms, and property".[9] Hence, environment is a broad term, which includes the aggregate of surrounding things, conditions, and influences. Under the environment, many ecosystems work. Ecosystems represent the distribution and behaviour of the biotic communities in relation to the physical environment. Marine ecosystem, mountain ecosystem, desert ecosystem and forest ecosystem come under the umbrella of the term environment. Therefore, environment is an all-inclusive, a holistic and multidisciplinary term. There is Environmental Economics, Environmental Politics, Environmental Laws, Environmental Business, Environmental Technology, Environmental Ethics, Environmental Aesthetics and literature, Eco-Theology and Eco-Spirituality. Naturally, development, which depends oan environment, also ought to be holistic and multi-disciplinary.

Classical and Neo-classical theories were predominantly 'unlimited growth' oriented, as they did not believe in the limited supply of natural resources. They kept growth and development in watertight compartments and developed an obsession with growth. Hence, for a higher growth rate, large-scale exploitation of natural resources with large-scale technology became the means accompanied by large-scale production and large-scale consumption. These practices ended up in the depletion of resources and degradation of the environment, thus forming a crisis. As a result, those who were worried about the future sustainability of this world naturally enquired about alternative holistic and integrated paradigms in development. This is because economic theory and economic indicators do not explain how the economy is disrupting and destroying the earth's natural systems. Economic theory does not explain why ice in the Arctic Sea is melting, why grasslands in Western China are turned into deserts, why coral reefs are dying and why climate change and global warming are happening. Thus, integration of the environment in the development model has become inevitable. Lester R. Brown calls it an 'Eco economy'.

Classical and Neo-classical theories did not believe in the limited supply of natural resources.

"An environmentally sustainable economy – an Eco economy – requires that the principles of ecology establish the framework for the formulation of the economic policy and that economists and ecologists work together to fashion the new economy. Ecologists

understand that all economic activity, indeed all life depends on earth's eco-system – the complex of individual species living together, interacting with each other and their physical habitat. These millions of species exist in an intricate balance, woven together by food chains, nutrient cycles, hydrological cycle and the climate system. Economists now know to translate goals into policy. Economists and Ecologists working together can design and build an economy, one that can sustain progress."[10]

The concept of sustainable development was introduced by World Commission on Environment and Development (WCED) in its report 'Our Common Future' in 1987. The title of the report itself reveals that the future is common to all. Here, 'all' refers to a fully inclusive condition of human beings, animals, birds, and the plant species. Even abiotic objects are included. The definition given in the report is very clear. "Sustainable development is the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs".[11]

The emphasis of the report is on need, not on greed. Demand for comforts and luxuries should be met only after satisfying the basic needs of millions of poor people. Sustainable development aims at "meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life".[12] In the final phase of suggesting essential requirements for attaining Sustainable development, the World Commission puts forward the following conditions:[13]

- A political system that secures effective citizen participation in decision making;
- An economic system that can generate surplus and technical knowledge on a self-reliant and sustainable basis;
- A social system that provides for solutions to tensions arising from disharmonious development;
- A technological system that can search continuously for new solutions;
- An international system that fosters sustainable patterns of trade and finance;
- An administrative system that is flexible and has the capacity for self-correction.

These requirements really depict the different dimensions of sustainable development. But these preconditions suggested by the World Commission are exclusive of ethics, morals, and values. This is one of the reasons why sustainability is still far from the reach of the modern world. To attain and assure sustainable development, there needs to be a paradigm shift in the approach towards development - an all-inclusive, integrated, and holistic approach.

New Dimensions

"Our Common Future' identified three dimensions (Environmental, Social and Economic) of sustainability. UNESCO considers sustainable development as the overarching paradigm of development of the UN. UNESCO envisages four dimensions of sustainable development. They are Environment (respect for nature), Economy (Equitable distribution), Society (Individual freedom and human right) and Culture (avoiding conflicts and war and keeping Peace). The short-term pathways and processes associated with these domains/dimensions help sustainable development. On a long-term basis, they are termed as sustainability processes.

The 2002 World Summit on Sustainable Development (WSSD) also reemphasized the three dimensions. The fourth dimension of 'Culture' has been added by the 'Agenda 21' experts. The five-dimensional approach has been developed by a group of authors.[14] In this 'Five-dimensional Model', Ecological, Economic, Social, Safety and Cultural dimensions are included. In the cultural dimension, Science and Education, Traditions and Customs, History, Religion, Ethics, Language and Communication, etc., are included.

From the Philippine perspective, sustainable development is a multidimensional concept involving not less than seven dimensions. Here the **Philippine Agenda 21** explicitly acknowledge the spiritual in human beings, nature, and society in the framework of development. The seven dimensions are Political development, Economic development, Social development, Ecological development, Cultural development, Human development and last, but not the least, Spiritual development.[15] Thus, sustainable development is an all-inclusive and all-encompassing term that has become the fulcrum on which the entire progress of the world revolves. In this context of the changing paradigm, it is relevant to find the contribution of ancient India and her culture in accelerating the process of sustainable development and the evolution of a new paradigm.

PART 2

The Hindu Inclusive Vision of Development

India has a life-line culture of being one with nature, believe in the oneness of Man and Nature. The universal *Vedanta* philosophy reflects the *Advaitha Satya* (Truth). Right from the Vedic period till date, the Indian lifeline has never deviated from this main line of thought. Pandit Deen Dayal Upadhyaya is one of the finest exponents of this Indian lifeline of development, based on the **'oneness"** (All- inclusiveness) of Man and Nature. His *Ekatma Darshan* or Philosophy of Integral Humanism based on the Hindu wisdom of the deep interrelationship between environment and development.

Human development is both internal and external. Internal development involves the physical, mental, intellectual, and spiritual dimensions. This four-dimensional development depends on external environmental factors such as air, water, sunlight and heat, soil, climate, and other living beings. Therefore, harmony between the life of individuals and these external factors is a precondition for the development of all the four faculties of human beings. Peace and harmony in society are nothing but the understanding of the interrelationship between Man and Nature and among human beings, realised through the day-to-day life of individuals.

"Isavasyamidam Sarvam yat kincha jagatym jagat"

This verse from *Ishavasyopanishad* indicates the omnipresence of God. There is the presence of God from the lowest microcosm to the largest macrocosm. Hence even a grain of sand is precious and divine. Nothing in this Universe is a waste. Everything has its own relevance and importance according to time and place. This all-inclusiveness is the quality of the Hindu philosophy of progress (*Preyas* supported by *Sreyas*), long before the modern social scientists began to dream of **Inclusive Growth**. In Hindu philosophy of Inclusive Growth, not only the marginalized people but also the marginalized animals and plants are part of *Preyas* and *Sreyas*.

Preyas is material prosperity and *Sreyas* is spiritual progress. The former is external, and the latter is internal, and both are interconnected, interrelated and interdependent. It is the state of mind, inclusive of values and culture, that paves the way for economic and social prosperity. The Universal Oneness (*Prapanch Ekathvam*) is also reflected in the dictums of 'The world is one family' *(Vasudhaiva Kutumbakam)* and 'let all the world

be in happiness' ('*Loka samastha sukhino bhavanthu').* **This philosophy which takes care of the biotic and abiotic together in its external diversity and internal unity is the basis of the Hindu vision of Sustainable development.** The multidimensional nature of modern sustainable development is completely enveloped in the ancient Hindu wisdom of the Oneness of Man and Nature. These philosophical concepts were brought into practice in India through religious rituals and social institutions.

The *Ekathma* Philosophy of Development

Deendayal Upadhyaya developed the *Ekathma Darshan* of development based on Hindu culture and tradition. "The central idea of his Philosophy of Integral Humanism (PIH) is that while humanity and the entire animate and inanimate nature around man are full of infinite diversity, it all has a common *Atma* (nearest English rendering is Ethos or Soul). The diversity is superficial.Because of the common *Atma*, all things naturally are cooperative and complementary. This is expressed by the word *Ekatma".*[17]

If environment is polluted, living beings also suffer from pollution. If we destroy the equilibrium of nature, i.e., source of matter which is the real wealth, it could disturb the total equilibrium of the system. Deendayal Upadhyaya, who made a scientific approach to the Hindu model of development through his *Ekatma Darshan*, visualizes two connotations of man in Nature: "one, man to man relationship, and two, man to wealth relationship, i.e., relation with materials available in Nature. Disequilibrium is writ large, in all aspects of human behavior, in society. Western societies have a high degree of disequilibrium. India suffers from the same, though on a lower key."[17] In brief, Upadhyaya proposes an 'economy with a human heart and ecology with God's grace'. An economy in which there is a feeling towards another's sorrow and misery flowing from the bottom of the heart assures real wellbeing. This is made possible by an economy in equilibrium-- free from both lack of wealth and infatuation for wealth. This equilibrium is connoted in the concept of *Arthayam* in Indian culture.[18] Modern sustainability economists regard this equilibrium (*Arthayam*) in the economy as a pre-condition for the equilibrium of nature.

"Nature has its equilibrium. This is maintained by the natural cycle of ever going change. Nature renews its depreciation and losses by its own processes. However, man is destroying Nature as if the all the resources are meant for his own existence. The speed of destruction of natural resources by man is not compensated by the speed of

renewing resources in nature. The equilibrium cannot be sustained this way. In the mad race to produce maximum of agricultural and industrial commodities, we have lost the foresight."[19] Modern environmental scientists also agree with this vision of Upadhyaya and they say that the rate of degeneration of resources should be compensated by the rate of re-generation of resources for the nature to be in equilibrium. This maintenance of economy and ecology equilibria is possible by pursuing ethical, moral, and spiritual values. The modern Green Growth Model and Circular Economy concept reflect the spirit of this *Arthayam*.

Values always bring limits to production and consumption. Deendayal Upadhyaya gives an example. "If we gather leaves of trees, it does no destruction to trees; rather, it is beneficial. In the case of agriculture, however, we have been withdrawing maximum of its resources because of our selfish and myopic view of life. Land, as a result, loses its natural fertility. The industrialists have reserve funds for the renewal of depreciated machinery. Nature, however, is neglected though it is a single unique factory of renewable resources……. We should take milk from nature and not ravish Nature."[20] He emphasises the proximity and harmony between Man and Nature and insists that the alienation of man from nature should be avoided at any cost. The intimacy of Man and Nature projected by Upadhyaya has its roots in the traditional wisdom of India. The intimacy with nature is exhibited through the protection of nature/environment, which is the crux of sustainable development.

Purusharthas and *Chathurashramas*: The Social Dimension of Sustainable Development

In order to attain Oneness and maintain harmony among individuals and between Man and Nature, the Indian wisdom based the social and individual life on four *Purusharthas* -- *Dharma, Artha, Kama and Moksha.*

If we link the *Purusharthas* with the *Chaturashramas* of *Brahmacharya, Garhastya*, *Vanaprastha* and *Sanyasa*, the best sustainable model of an Individual and social lifestyle is available. *Dharma* is the root of *Purusharthas*. That which sustains is *Dharma*. (*Dharanat iti Dharma:*). During infancy, adolescence and early youthhood (*Brahmacharya*), through *Gurukula* education, the values of *Satya* and *Dharma* (*Satyam vada Dharmam chara*)

were induced into every individual. After that, when individuals are matured, they enter into family life (*Garhasthya*). Here, they were free to acquire wealth (*Artha*) and satisfy Desires (*Kama*). Thanks to the attainment of values in childhood, the acquisition of wealth never reached the stage of exploitation and satisfaction of desires never reached the level of greed. In other words, unsustainable acts of overexploitation, overproduction, overconsumption, etc., were unknown to the true Hindu community.

In the first stage of *Brahmacharya*, the third stage of Hermitage life (*Vanaprastha*) and in the fourth stage of Saintly life (*Sanyasa*), a simple and humble lifestyle with the satisfaction of minimum needs was followed. That means, out of the total four stages of life, three stages represented simple and humble life. In other words, three fourth of the population were having a sustainable lifestyle. The *Grahastha* was also expected to observe very strict rules for the conservation of resources in day-to-day life. This was the spirit of a sustainable lifestyle in Hinduism. When Indians began to follow the Western lifestyle blindly, exploitation of people and natural resources became a practice in an unsustainable way. The mechanistic Western development model and lifestyle resulted in the depletion of resources and degradation of environment. The only safety valve from this high pressure on people and planet is the Indian wisdom on Sustainable development.

PART 3

The Universe of *Panchabhootas* and Sustainable Development

The rhythm of nature demands a *vratam* (specially disciplined life with a purpose) from the people. That *vratam* in India is to live in harmony with nature. According to the vedantha philosophy, the Pancha *Mahabhootas* or the five gross elements -- Space (*Akasha*), Air (*Vayu*), Fire (*Agni*), Water (*Jalam*) and Earth (*Prithvi*) and their qualities (*Gunas*) -- constitute the Universe (Prapancham). *Pancha* means five and *Pra* denotes special, natural or primordial elements. Thus, from this very word *Pra -Pancha*, it is evident that the universe is made up of five primordial elements.

Matter and energy are, respectively, the gross and subtle components of this Universe. The planet on which life forms exist is also a part of this great Universe. Whether Universe is created or evolved does not make much difference, but the planet

and the solar system is a reality that we experience within the limits of time, space and causation, and life very much depends on this.

Our planet Earth which forms a part of this Universe provides the right environment or nature *(prakriti*) for the emergence, existence and sustenance and the timely disappearance of life through the interactions and interconnections of all the biotic and abiotic things. As a pre-condition of life, air, water, soil and the ecosystem were evolved even before the coming of humans on this planet. The Indians treated them with respect and regard. We consider these elements as sacred and worship them. The ancient Hindu Literature promotes the conservation of all these resources. The 5 basic/ primordial elements - the *Panchabhuta* of this Universe are:

Akasha - Space/Ether

Vayu - Air

Tejas - Fire

Apah - Water

Prithvi - Earth

There is a sequential order for these five elements according to their decreasing subtlety. The physical Universe is an interplay between these five elements. It is by the interaction of the five elements that the Universe in all its size, space, and matter *(bhootas)* manifests. After the process of *Pancheekaranam*, - the process by which the subtle elements are turned into gross matter, the state of the panchabhootas becomes *Bhautika*. Thus, the origin of the Universe is the result of three processes consisting of the five primordial elements (*Panchabhootas*), the five activities *(pancheekaranam*) and the formation of the *Prapancha*.

First came *Akasha* or Space or Ether. Sound is the quality of space. We cannot touch, see, taste or smell the space. The second element that evolved is Air (*Vayu*). We can hear the wind blowing (quality of *Akasha*) and feel it when the air touches (quality of *Vayu*) our body. But we cannot see it, smell it or taste it. But in the next stage, when *Tejas/ Agni/* Fire is evolved, we can hear, touch it and see *Agni*. After this when water/ *(Jal)* is evolved, we can hear the sound of its flow, touch it, see it and taste it. Lastly, the evolution of the Earth/ matter (*prithvi*)- comes from the word *Pratu* which means

expansive and heavy - takes place and here we can hear the sound, touch the matter, see the see it, taste it and also smell it. All the five senses and sense organs are fully developed and utilized by the time the matter is evolved. It is the expansion (*Pancheekaranam*) of the *Akash* that is responsible for the formation of the Universe.

Details of the Vedantic theory regarding how the material/ physical world came into existence, originating from primordial five subtle elements, can be studied from the treatises of Adi Sankara and also from *Srimad Devi Bhagavatam.*

The purity and balance of these five elements externally determine the sustainability of life on this planet. Our body also is made up of these five elements. The human body is an exact replica of nature in terms of *panchabhootas*. Here also, the purity of the five elements is a determinant of the balance and health of the body. Pollution-induced diseases are very common nowadays. There are various *Suktas,* such as *Nasadiya Sukta, Apah Sukta, Hiranya Garbha Sukta and Viswa Karma Sukta* which in the *Vedas* describe the process of evolution of *Prapancha* through five elements. *Svetasvatara Upanishad says,*

"Yo devo agnau Yo apsu, Yo visvim
bhuvanamavivesa Yo osadhisu Yo vanasptisu
Tasmai devaya namo namah"

"The God who is in fire, who is in water, who pervades the whole universe, who is in medicines who is in vegetation, we salute that God".

All materials, including the human body, are made up of the five basic elements and hence they are divine. That is why a Hindu worships nature -- the sun, moon, soil, rivers, mountains, plants, animals, birds, etc. Recognizing the interrelationship, interaction and interconnections, the Hindu Philosophy always realized the 'Unity in Diversity', not diversity in unity.

1. *Akasha* (Ether/Space)

Akasha is not the blue sky that we see. It is the omnipresent space element. Among the five elements, this is the subtlest one. Every object ranging from an atom to a supernova, occupies a space in this Universe. The matter and its movement (due to energy) constitute the Universe. Each star or planet has its own size/mass. In the solar

system, each planet and the Sun have their own spaces. The planets have their orbit to move. If a planet deviates from its orbit, it is impossible to imagine the catastrophe it might cause. The Earth also has a mass and an orbit of its own in the solar system, thus occupying the space designed for it. Any change in the mass or orbit of a planet can lead to a total disruption/ imbalance in the solar system.

On earth, oceans have a space, mountains have a space, deserts and forests have their own space and each of them performs its respective functions by remaining in its space. If one's space is occupied by another, the equilibrium of the system will break. In the forests, trees have a space, rivers have another space, animals have their space and microorganisms also have their space. Remaining in their space, they perform their natural functions.

Human body also has a mass (weight and form) and movement (function). Every organ of the body has its own shape/form, position and movement (function). This is determined by the space element of the *panchabhootas*. The position of the head is at the top of the body, the hands are on both sides and the legs are at the lower part. They occupy a physical space. The head, hands and the legs have their own separate movements/ functions and hence have a fixed position/space in the body, which are **non-rival.** These spaces are harmoniously balanced so that no collision occurs between them. The internal organs also have spaces of their own. The heart, lungs, liver, kidney and other organs have their own position and functions. Every position and function is special, sacred, harmonious, interrelated and non-rival in nature. This is spatial balance or equilibrium. Any spatial dislocation or malfunction (imbalance) can result in the total or partial disharmony and collapse of the body system.

The individuals in the society also have separate spaces of existence and movement (function). There is a physical space, social space, professional space, political space, religious space, etc., and each space has a corresponding movement (function). In order to keep the space and spatial functions intact (in balance), moral principles, religious codes, political policies, social restrictions, organisational and legal regulations are observed in every society. The respective role and actions/duties of every individual in society are determined either by one or some or all the above-mentioned codes of conduct. The Hindu society for centuries, has been observing these codes of conduct in the form of religious beliefs, rituals, and practices in society to attain peace and harmony

along with prosperity (*preyas*) and progress (*Sreyas*). All activities of every individual in the society are defined, explained, and executed according to these restrictions and freedoms (checks and balances).

The Hindu believes that God resides everywhere and hence every space is sacred to him. Be it occupational or functional, every person should have a balanced and judicious approach so that conflicts and confrontations can be reduced in society. The right (qualifying) persons should occupy the right space in society so that the individual stress (physical and mental) and social conflicts will be at a minimum. Thus, peace as a precondition for sustainable development can be maintained by observing the spatial equilibrium. In a society where research-minded people are made office clerks, musicians are made hotel waiters, introverts are made advocates, cowards are made soldiers and goons are made policemen, social conflicts and tensions will rise and attainment of Sustainable development will remain only a dream.

In nature each living being has a separate space to live. Many living beings sustain on soil, water and air. The spaces are determined by a special permutation and combination in arrangement to maintain a natural equilibrium, for example, fishes in water, human beings on soil and birds in the sky. As a result, collision among them is less and thus, sustainability is promoted. Even on land, wild animals have their separate space. But due to greed, human beings encroach upon the living space of animals, leading to human–animal conflict. Human-animal conflict has become common in the forest areas of many countries due to expanding human settlements adjacent to forests.

In 1911, Earnest Rutherford representing Modern Science, described every atom having mostly empty space with electrons and protons circling the nucleus and the rest is space. Bhagawan Swamy Narayanan[21] in '*Vachanamrut*' says that, "…Akasha pervades and resides within all those objects as well. In fact, there is not a single object in which there is no *Akasha;* even the smallest part of *Prithvi* (matter) has space within it." *Akasa* or space is associated with the sense of sound and the sense organ of the ear in the human body.

2. *Vayu* (Air)

After space, air is the next important element necessary for the existence of all living beings on this planet. The present condition of the atmosphere represents a

balanced and proportional supply of different constituent gases. For example, the proportion of nitrogen in the atmosphere is 78%, Oxygen in the atmosphere is about 21%, and carbon dioxide has a share of 0.04%. This is the balanced proportion of these three gases essential for the sustenance of life on this planet. Suppose the proportion of oxygen is increased to 50%, then the whole planet would be turned into a heap of ashes, if we lit a matchstick. On the other hand, if the volume of carbon dioxide is increased beyond a certain level, suffocation will be the result. Moreover, violent winds and air gaps are the results of hyperactivity and inactivity of air. Hence, there is a critical minimum and maximum (range) proportion of various components of air, that assures the existence and sustenance of life on this planet.

The body actually depends on the vitality (*Prana* force) or air available from the atmosphere. There is oxygen content in every cell of the human body. A healthy body needs 7 seconds for inhaling, 7 seconds for exhaling, 1 second halt in between, thus making 15 seconds' total. Thus 4 full breathing in a minute makes a healthy body. A person has to breathe 22,000 times on an average per day and requires 16-18 kg of fresh air. As we have not created air, we have no right to pollute it and make it scarce. It is a sin to pollute the divine air whom Hindus revere as *Vayu deva*.

Since Vayu (Air) has evolved from Akash or Space, the quality of Akash also is involved in *Vayu*. It enables the sense of hearing (Sound) and has a role in balancing the metabolism of the human body. Ayurveda refers to different types (depending on the roles) of air like *Pranan, Apanan, Udanan, Samanan*, *Vyanan,* etc., which have different roles to perform in balancing the various activities like digestion, blood circulation, excretion, etc. If their functions are not proper and balanced, internal problems arise. *Prana* is directly related to the respiratory system, *Vyana* controls the circulatory system, *Samana* with the assimilatory system of the body*, Udana* with the upward motions and maintenance system and *Apana* with the downward motions and excretory system. These functions show the importance of air in keeping the body intact. In the outer atmosphere also, a balanced movement of air assures peace and progress. Tornados, which are the result of an imbalance in air pressure and movement, cause much damage to life and properties. The balance and harmony of air is a pre-condition for the peaceful and harmonious life and underline the interrelationship between air and life forms on this planet. They are different parts of an integrated whole.

Present Scenario

The pattern of industrialization since the 18th century and 'progress' have resulted in the imbalance of the constituents of air in the atmosphere. Carbon dioxide was at an all-time high in 2021. The World Meteorological Organization (WMO) has warned that it has risen above 419 parts per million(ppm). About 200 years ago, this level was only 240 ppm. In 2021, global energy related carbon dioxide emission rose by 6 percent to 36.3 billion tonnes, the highest-ever level.[22] The World Health Organization's air quality database of 1,600 cities in 91 countries shows that the concentration of Suspended Particulate Matter (SPM) 2.5, is the highest in Delhi with 153 micrograms per cub. meter. An Environmental Protection Agency (US) and WHO study says that 4.3 Mn. deaths occur in a year due to indoor air pollution from air conditioners, cleaning agents, aerosol sprays, furniture of pressed woods and paints, etc. Air pollution is the 5th largest killer in India. Outdoor air pollution is a major contributor to stroke, heart disease, lung cancer and respiratory diseases.

Hurricanes, cyclones and tornadoes are formed by violent rotating or horizontal movements of the air. Tornadoes are capable of tremendous destruction with wind speed up to 300 mph. The US averages about 1,200 tornadoes per year. The Hurricane Katrina which occurred in 2005 was the costliest natural disaster and one of the five deadliest ones. It caused a loss of $125 bn in property damage and over 1,800 fatalities.[24]

All these facts reveal that air, be it inside the body or outside, must have a balance in its formation and movement. If it is in imbalance, the life will be disturbed /destroyed, thus establishing the necessity of an interrelationship, which in its turn is a precondition of an equilibrium. But human made pollution is making air a scarce commodity. It is also one of the hurdles to sustainable development. One prayer in Rig Veda says, 'Let the air flow with medicinal properties and let it forever bring peace and happiness. ("*vaatha aavathu bheshajam shambhu mayobhu no hrude"*)'.[24] Let air flow with medicinal properties and let it bring in my heart happiness and peace. In *Atharva Veda*, the verse '*Yoovam vaayo savithaa cha bhuvanaani rakshatha:'* [25] indicates that air and sun are the protectors. But how far the modern world is able to keep air unpolluted? Hence, the traditional wisdom of considering Air as a *Devatha* and worshiping of it in India, can be considered as a precautionary method against pollution of air, thus helping sustainable development.

3. *Agni* (Fire/Temperature)

Indians also worship the fire (*Agni*). Heat and light are the qualities of fire. As per the *Panchabhoota* concept, eyes represent *Agni* in the human body. Sight is its function and Sun is the *Devatha* (Deity). Sense of hearing and touch (qualities of the former elements *Akash and Vayu*) are also involved in the fire element since it has evolved from these two elements. Fire has a sound when burning and its heat can be sensed through touch. The third quality of fire is that it is visible and the source of light and the sole source of energy in the solar system. Though only 52 percent of the sunrays are visible by the naked eye, almost all races in the world worship the Sun.

Just as there is a normal temperature for the human body (37 degrees Celsius) to sustain itself, so also there is a normal temperature for the planet, for the sustenance of the life system. When the body temperature increases from the normal, fever occurs, which is unsustainable and unhealthy for the body. Similarly, when the body temperature decreases beyond a certain level, its existence is in danger. The same is the case with the planet. In the Polar regions where there is extreme cold and in the regions near the equator where there is extreme heat, biodiversity is very less. This means that there is an inverse relationship between the richness of biodiversity (life form enrichment through variety) and the deviations from the normal temperature. Normal temperature is an inevitable precondition for the existence and sustenance of life on the planet. Understanding the significance of temperature and life, the Hindus worshipped the Sun God.

The *Soorya Namaskaar* is a symbol of respect shown to Sun God, for the services it extends to humanity. Sun is the most potent and powerful God in Hinduism. In Rig Veda many hymns describe Sun as the manifestation of the whole universe and as the sole Soul. The *Gayatri Mantra of Rig Veda* is an invocation to the universal power and glory of the Sun.

Om Bhur Bhuvah Svah
Tat savitur varenyam,
Bhargo devasya
dhimahi
Dhiyo yonah
prachodayat.

It means: The earth (bhu), the planets (bhuvah), and the galaxies (swah) are moving at a great velocity, and the sound produced is Om, (the formless God). The Lord (tat), who manifests himself in the form of light of the suns (savitur) is worthy of bowing/ respect (varenyam). Let us meditate (dheemahi) upon the supreme glory of the light (bhargo) of the divine lord (devasya) and chant of Om. May He (yo) guide our(nah) understanding (dhiyo) in the right direction (prachodayat).[26]

Though the pollution of Sun is at present far beyond the capacity of human beings, their activities imbalance the planet's climate through global warming. The burning of fossil fuels and other industrial activities have resulted in the temperature imbalance. In other words, the *Agni Deva* is dissatisfied with the activities of human beings.

Present Scenario

From 1800 AD to 2000 AD, the industrialization process reached its culmination. The automobile industry became a major cause for pollution of air. Noise pollution and global warming through the release of CFCs have also emerged as threats. As a result of industrialization, the atmospheric temperature is going up. The year 2014 was recorded as the hottest year since 1880. Every year in the 21st century is on the list of the top 20 warmest years in recorded history. Global warming is now affecting all oceans. Further, pollution from heat-trapping gases will raise the likelihood of severe, pervasive and irreversible impacts on people and ecosystems.

Kerala, known for its moderate climate, is now experiencing sun burns and even deaths that were unheard of. The scorching heat of the summer sun has killed so many animals grazing on the open ground and caused sunburns to many people exposed to the sun. For the first time in the history of Kerala, the District Collector of Palakkad imposed restrictions on the duration of outdoor works during noon time to save people from sunstrokes. Hence, the impact of Agni is reaching extreme levels due to the anthropocentric activities. Extended winters, super scorching summer and extreme rainfall, deviance in temperature, etc., are becoming common for the country with every passing season. On Sunday, 8th June 2014, Delhi broke its 62-year-old heat record. According to the UN'S World Meteorological Organization (WMO), which monitors global weather, the first 6 weeks of 2014 saw an unusual number of extremes of heat, cold and rain in most parts of the world. The long-term trend of global warming has continued in 2021 also. The earth's temperature was 1.5-degree Fahrenheit (0.85

degree Celsius) above average, according to NASA's Goddard Institute for Space (GISS) in New York.

Normal/balanced temperature is a prerequisite of sustainable life and development. Scientific studies reveal that human intervention has increased the temperature of the planet and is adversely affecting the entire life system. The traditional Indian wisdom worshipped *Agni* as God and designed all activities to please this God. Indians never promoted any activity that would proliferate an imbalance in the temperature, knowing the impact it would have on the human body and life. Thus, the *Agni Deva* concept was a preventive measure adopted by the Indians long ago for maintaining the balance of the environment as a whole. *Agni* and the sustainability of our life are interrelated.

4. *Varuna/Jalam* (Water)

Water is the next element (*Bhoota*) necessary for the survival of life on this planet. Human beings cannot live for more than a week without water. It is also known that the source of all life forms is water.

In the *Panchabhoota* theory, the extension of water in the human body is represented by the tongue. Hence taste is the quality of this element in human body. Apart from this, hearing, touch, and sight are also involved in the water element, since it has evolved out of the former three elements. The human body has about 67-70 percent water content. Absorption, circulation, excretion, and respiration in the body depend on water. Human body needs 5-8 liters of water daily. The earth has also above 70 percent of water content. 94 percent of this water is in the oceans. The ocean water is salty. The major portion of the water content in the human body is in the form of blood and that is also salty. Our thirst is satisfied by water. It smoothens the digestion process. Excretion is made easy by the action of water. It cleans the pores of the skin. Excess sweating and body temperature are controlled by water. The toxins from the body are also removed by water.

When there is too much supply of water in the body it is overhydration. Under supply of water is dehydration. Both are not desirable from the health point of view. It is an imbalance. Oversupply of water on earth is flood. Undersupply of water is drought. Both are extreme conditions that make life very difficult and unsustainable. Therefore, a balanced and proportional supply of water both in the body and on the planet is

required for the sustenance of life. It is the purity and adequate supply of water that assure the balanced and sustainable development on this planet.

Present Scenario

The twin problems that humanity faces now are pollution of water and scarcity of water. A UN study states that 41 percent of the world population is living in water-stressed areas. In 2002 water shortages killed over 4 million people. Some 600 children die every day from drinking polluted water. The next war could well be fought for water. In the US after 2 centuries of industrial progress, 40 percent of its waters are rendered unfit for fishing and swimming. Some 2 million children are susceptible to neurological damage caused by the increased lead levels in water. Around 74 percent of all natural disasters between 2001 and 2018 were water related. Floods and droughts affected over three billion people and caused total economic damage of almost 700 billion US dollars.[27]

A UN Warning based on the World Water Development Report 2015 says that if countries do not change the management of their water resources, the world could suffer a 40 percent shortfall in water in the next 15 years (within 2030). *Parjanya* (clouds) cause rains and are deified for this. The *Brihadaranyaka Upanishad* (5.5.1) says that 'there was only water in the beginning'.

5. *Prithvi* (Matter)

Prithvi is the least subtle and most sophisticated last primordial element whose property represents the solid-state matter which evolved as the Universe and keeps evolving.

In the human body, the organ associated with *Prithvi* is the nose and the quality is smell. All the other four qualities (sound, touch, sight and taste) are also involved in the element of matter. We can hear the matter falling from the top, can touch, see, taste, and smell it.

The main matter familiar to us is soil and its minerals. It is the basic source of food for living beings. We cannot survive more than a month without food. Fertility of the soil is the major determinant of food production. The fertility (health and productivity) of the soil depends on the contents of nutrients and minerals like phosphorus, nitrogen, potassium, sulphur, calcium, iron, etc., in it. The human health and productivity also

depend on the vitamins and minerals like iron, calcium, etc., supplied to the body through food. If these nutrients and minerals are either over supplied or undersupplied to the soil /body, ill health is the result. Hence, a balanced supply of minerals and nutrients is a precondition for the health of both soil and the body.

What happened in the Green Revolution? In the name of increasing productivity, HYV seeds, insecticides and pesticides, chemical fertilizers and irrigation systems were introduced in agriculture. The consequences have become obvious in the present agricultural scenario. The HYV seeds need large quantities of water, insecticides, pesticides and also chemical fertilizers. As a result, even underground water is being exploited in large quantities. The water table has come down dangerously in several regions of Punjab, Haryana and Kerala. Poisonous substances in our cereals can be traced to the indiscriminate use of chemical fertilizers, insecticides and pesticides. This has resulted in the sporadic spread of a number of diseases like cancer, genetic defects and immunological and other chronic diseases known as toxic substance-induced diseases. This is the reason why the so-called champions of 'Green Revolution' are now crying loudly for an 'Ever Green Revolution'. Sustainable agriculture, organic farming, etc., have become the slogans of the day.

In the name of urbanization, large areas of fertile land are being turned into concrete jungles. In Kerala, the land mafia is engaged in leveling the hills and filling the paddy fields. In India farming was agri-**culture**, but now it has become agri-**business** as in the industrialised countries. Business is far off from culture.

India which had a perfect village economy, based on an interdependent and recycling lifestyle with self-sufficient existence was totally devastated and destroyed by the so-called modern agriculture. In other words, the balance of the ecological constituents of the soil has already been lost. Soil is the best example of solid matter losing its balance due to human interference. Other forms of solid matter are also subjected to pollution and exploitation by human interference. Sand mining and rock mining, enormous exploitation of metals and minerals are also causing imbalance in nature. This has resulted in unsustainable development.

Present Scenario

About 2 billion hectares of soil, equivalent to 15 percent of the earth's land area has been degraded by intensive agriculture and other human activities. Globally, each

year there continues to be a net loss of 26 billion tons of soil due to erosion. Human-induced desertification encroaches on 6 mn. hectares of once productive land. The worldwide loss of productivity due to soil erosion alone is 20 mn. tons of grain a year.

The above data make it clear that there is an imbalance both in the condition and use of land. The element of land has deteriorated in quality and destructed in quantity. We should remember that the soil is 'not an inert mass, but a delicately balanced assemblage of mineral particles, organic matter and living organisms in dynamic equilibrium.' This fact had been recognised in India centuries ago and that is why we regarded the earth as our Mother *(Bhoomata*). After getting up in the morning and before putting our foot on the soil, we seek pardon from her (*Padasparsam kshamaswame*). The whole idea of the Hindu worship of Bhoomi (land) is to keep the dynamic equilibrium of the land and all other matter found in soil.

The Hindu worship of Bhoomi (land) is to keep the dynamic equilibrium of the land and all other matter found in soil.

The Balance or the Equilibrium of the *Panchabhootas*

The existence of nature and human beings depends on equilibrium. Just as nature needs a proportional balance of the five elements, human beings need a balance of the Panchabhootas or the five senses. The imbalance in their proportion can lead to natural and human disequilibria, i.e., a deviation from the normal (sustainable) path of movement (activities) and displacement of position. This is the root cause of all the problems in the world. If our sense organs are imbalanced, we may not be able to pursue the TRUTH intact and in toto, and collisions in spatial dimension are the result. All the tensions, stress, strain, conflicts, confrontations and even wars of mass extermination of men and destruction of materials in this world at the personal, organizational, institutional, and social, national, and international levels occur due to the imbalance in the sense perception. This total or partial disruption of the internal and external systems is the root cause of all violence.

The five senses and human emotions and intelligence should have a balance. Imbalance in any of these factors is reflected in the actions of human beings. These are known as anthropocentric causes/actions of environmental disaster: Population growth, overproduction and consumption, deforestation and desertification are all anthropogenic disasters. Since Economy and Ecology are interdependent, any imbalance in ecology/

environment is likely to adversely affect the economy as well. The study made by the world Economic forum in 2021 says that Climate Change could wipe off up to 18 percent of world GDP by 2050. The Swiss Re Institute in their report published in April 2021 says, "Many major economies would lose 10% of their GDP in about 30 years' time". The impact on environment also would be an imbalance in the *Akasha, Vayu, Agni, Jalam and Prithvi* elements of nature. These imbalances in their turn cause the toppling of economies and destruction of life on this planet. In order to keep the balance of *Panchabhootaas*, *Atharva Veda* gives an advice.[29]

"Yetthe bhoome vikhanaami kshipramthadapi rohathu maathe marma vimagvari maate hridayamarpipaam"

Oh, Mother Earth, anything that I dig out of your womb shall regenerate quickly, let my actions not hurt your delicate parts, let it not split your heart. While promoting development, this must be the principle to be pursued by humanity.

The balance and the equilibrium of the five elements and sense organs together can be called ***Shanti (peace).*** We always aspire for ***Shanti*** over ***Ashanti*** inside our mind, in the body, in the society and in the environment. It is the balanced use of the five senses and sense organs that assure the control of avarice, greed, and over-exploitation of the resources. If we become the slaves of senses, advertisements, and modern techniques of selling luxurious products become our masters. This is why every mantra in Hindu scriptures directly or indirectly ends up with the word *Shanti*. Here it is relevant to note the *Yajurveda Mantra*.[29]

The balance and the equilibrium of the five elements and sense organs together can be called *Shanti.*

Om dyau: shanti Anthareeksham

Shanti: Prithvee shantiraapa: shanti

Roshayadha: shanti: vanaspathayah: shantir vishve devaa:

Shantir brahma shanti: sarvam shanti:

Shaantireva shaanti:

Saa maa shantiredhi

Om shaanti: shaanti: Shaanti:

It means*:* Let the *Soorya loka* be in peace. Let the atmosphere, earth, water, plants, and trees and all the forces of and phenomenon in nature be in peace. Let the knowledge and everything be in peace. Let peace be in peace. Let there be continuous progress in peace.

This verse of *Yajur Veda* seeks the equilibrium/balance or *shaanti* of all elements in this Universe. This Universal *Shanti* (*Viswa Shanti*) message is based on the *Sarvabhoota hita*, which is a very peculiar feature of Hindu philosophy. 'Live and Let live' is the essence of this *Shanti.* The religious rituals and practices of Hindus are designed for the protection of environment and promotion of development and thus attain sustainable development.

PART 4

The Deities of the *Panchabhootas*

The deities of Hindus symbolize abstract principles, and their worship promotes a sense of respect towards these principles and induces a discipline in the personal lives of the people. These are practices aimed at keeping a balance in the thoughts, words, and deeds of the people so that a balance is maintained in the society and in the environment. A balanced collective mind leads to a balanced society, and a balanced society leads to a balanced environment. Hence worship of the five deities given below- *Vishnu, Devi, Shiva, Ganapathi* and *Soorya* – are meant to prevent any imbalance in the proportion of the five elements in the body as well as in the society and in the environment so that *Shanthi* is attained. There is sufficient scope for research on the belief system, rituals and practices of these deities to see how they are connected to the mind, body and matter balance.

Akash-Vishnu - A *Vishnu Bhaktha* is expected to keep the spatial balance by not encroaching the forests and keeping the scientifically proved minimum of 33 percent land area under forest cover, for keeping ecological balance. S/he is also expected not to encroach upon anybody's space and cause imbalances in the system.

Vayu-Devi - A *Devi Bhaktha* is expected to keep the air pure and thus help attain sustainable development, by preventing the health problems caused by air pollution.

Agni-Shiva - A *Shiva Bhaktha* is supposed to check global warming and protect the planet. He should abstain from the activities that release CFCs in atmosphere that cause the warming of the planet.

Jalam-Ganapati - A *Bhaktha of Ganapathy* must not pollute and wastewater, thus helping to prevent the future wars for water. The bhakta is supposed to conserve water maximum in his/her day-to-day life

Prithvi-Sun- A *Bhaktha of Surya* must not pollute/destroy soil, thus assuring sustainable agriculture.

This Indian system of worship of separate deities for these five elements is an example of the permutations and combinations in Indian wisdom, in interconnecting the various principles and philosophies in day-to-day life of the people.

The *Panchasthalis* / 5 Temples in South India

Ancient Hindus not only preached ideas and values, they also practice them. The five subtle elements of the *panchabhootas* are still being worshipped in five famous *Shiva* temples known as the *Panchasthalis*. The temple in Chidambaram, Tamilnadu has the *Akash Shivalinga* as the idol of worship. In Sri Kalahasthi in Andhra, Lord Shiva is worshipped as *Vayu Linga*. In Thiruvannamalai, the worship of Shiva is in the form of *Agni Linga.* The Thiruvannaikkaval, *Shiva* Idol symbolizes the *Jala* element and in Kancheepuram, the *Prithvi* element is worshiped. Here we find that God Shiva encompasses all the five elements. Thus, Lord Shiva can be regarded as the Lord of *Samhara* or extermination of the unsustainable tendencies in human minds, by worshipping and preserving the balance of the *Panchabhootas*.

Peace to the Five Senses and Five Elements through Poojas[30]

More and more Hindu temples are integrating and re-introducing nature and environment-oriented themes directly into their rituals and worship services. A new ecological and environmental orientation of religious rituals is necessary. All Hindu *poojas* (ritual worship) involve experiencing the divinity with all five senses. The poojas of the divine deities in temples involve the following.

Divine sound- (*Akash*) - sounds of Conch shells, bells and singing bhajans or reading scriptures.

Divine Touch-(*Vayu*) -touch of mother earth through sandal, Saffron (*kumkum*) and *Bhasma.*

Divine sight - (*Agni*) -vision of Devis and Devas and flowers, fruits and plants in spectacular arrangements.

Divine Taste- (*Jalam*)- Offering sanctified *Prasad* in the form of food and Teertha as holy water for drinking.

Divine smell – (*Bhumi*) -smells of incense, ghee, flowers etc.

It is said by Swami Vivekananda that work is worship. Every work in day-to-day life should be a pooja. Then alone the resources, work, and the worker would be considered sacred. The absence of respect, regard and devotion and the sacredness attributed to work, is the main reason for the deterioration in life that we see around us. If people are taught to consider every work as a pooja, a sense of conservation, preservation, and reduction of waste of resources would be the net result and contribute to sustainable development.

The Wisdom of Protection of Forests in Ancient India

Forests are the lungs of this planet. It is the perennial source of oxygen and water. Scientists say that in order to maintain the ecological balance, a minimum of 33 percent of the land area should be under forests (National Forest Policy). More than 20,000 acres of rainforests are burned every day. That means 150 acres are burned every minute. A study in the journal 'Nature' reported that there were close to 3.4 trillion trees on Earth, i.e., 422 trees per person in the year 2022. The year 2011 was the UN International Year of the forests (IYF). The UNEP with the theme "Forests for People" had chosen India as the 'Global Host' in that year. For centuries, India has had a rich tradition of conserving forests with people's participation, as part of managing forests. As centres of biodiversity, and source of water for billions of living beings, forests are the supporting pillars of sustainable development.

There were three types of forests in ancient India:

Mahavana or dense forests: impenetrable place for the mystical manifestation of natural and supernatural forces. *Mahavana* is the abode of Lord Shiva who is considered to be the God of fearlessness.

Tapovana : One can enter this forest with ease. Sadhus, Sanyasins and sages (*Rishis*) are occupying the frest due to its easy accessibility and serenity. *Tapovana* is the citadel of wisdom in India. *Naimisharanya* near the present Uttar Pradesh is an example of *Tapovana*. *Tapovanas* are '*Abhayaranyas'* – the places of resort for animals- (sanctuaries)- due to the presence of *Rishis*.

Srivana: forests of wealth and prosperity- *vanasri* concept- major and minor forest products are extracted from here. The ancient Indians were not allowed to disturb or destroy the *Mahavana* and *Tapovana*. They were only allowed to have limited exploitation of the *Srivana*, for tapping minor and major forest products for their simple livelihood. Thus, the major portion of our forests were preserved through this concept.

According to Indian tradition, "the *vana* should not be within the village but the village should be within the vana".[31] The *vana* of fruit bearing and useful trees assured economic prosperity also.

In *Vrindavan*, Radha as *prakriti* and Krishna as the *paramatma* enjoyed their life. There should be a *vrindavan* in every village. How can a Hindu destroy the forest where Krishna and Radha are present? Moreover, there is description of forests in the epics of Ramayana and Mahabharata as *Aranyakaandam* and *Vanaparvam. Vrikshayurveda* is an important treatise on the varieties of plant kingdom in India. *Vanaparvam* is the "Book of Forest', which is one of the longest parts in Mahabharata and has 21 sub parts and 324 chapters. It is in the *Aranyakanda* of *Ramayana* that we hear about *Panchavati*.

New research shows that deforestation in temperate and high latitudes cause changes in atmospheric circulation, resulting in southward shift in monsoon rains. This will result in a significant fall in precipitation in the northern hemisphere, monsoon regions of East Asia, North America, etc. The South Asian monsoon region would be affected the most, with an 18 percent decline in precipitation over India.[32]

Sacred groves represent the ancient Indian way of conservation.

Sacred Groves

Sacred groves represent the ancient Indian way of conservation of genetic and biological diversity and perennial water sources. They were the vital life support system of many villages.[33] "The presiding deities are believed to look after the wellbeing of the people and also protect the groves by administering punishment (mostly death) to the offenders".[34]

The science behind the sacred groves is as follows:

1. Water absorption capacity of the soil is very high.
2. Water retention capacity is also very high.
3. Water releasing capacity is low.

The sponge-like soil of the sacred groves absorbs and retains water during the monsoon and releases it in little quantities throughout the year, thus recharging the wells and ponds of the low lying areas. Sacred Groves are best examples of the unseen natural links between *Vana devata* and *Jala devata*. When deforestation is regarded as a threat to sustainable development and Goal 6 of Sustainable Development Goals (SDGs) suggest 'Clean water and Sanitation' for all, the sacred Groves can be considered as the best example of traditional Hindu wisdom of sustainable development.

Devaranyas and Nakshatra Vanas

Devaranyas are forest areas protected by the temple authorities in a village. This practice also served the goal of maintaining the ecological balance of a region by keeping a portion of the area under green cover in the name of the deity of the temple. Many of the temples in India possessed hundreds of acres of forests and it helped to keep that area under ecological balance.

Nakshatra vanas are forests preserved by individuals by planting the trees according to the birth star of the individuals. In a joint family system, where acres of barren lands were available, these traditional rituals saved forests and maintained the eco-balance. Not only trees and plants but also birds and animals were protected by observing this tradition. Thus, 27 varieties of plants/trees, birds and animals which were connected to the stars were protected in each locality under this religious custom and, thus, the biodiversity was also maintained. Protection of biodiversity is one of the important goals of sustainable development.

Conclusion

The environmental wisdom of India can be considered as an ancient version of the modern biodiversity conservation technique, which is quite relevant at a time when Scientists warn that the "persistent loss and decline of biodiversity is leading humanity

to early days of the planet's sixth mass biological extinction event. Since 1500 AD, more than 320 terrestrial vertebrates have become extinct. Population of the remaining species show a 25 percent average decline in abundance. While previous extinctions have been driven by natural planetary transformations or catastrophic asteroid strikes, the current die-off can be associated with human activity, leading to an era of Anthropocene defaunation".

Influencing thoughts is the best way to influence words and deeds. Action programmes are the need of the time regarding protection of environment for realizing SDGs. How can the state of mind be influenced? Since belief systems, rituals and practices of religious and spiritual values associated with it still influence a sizable portion of world population, the eco-spiritual and eco-theological aspects of Hindu religion can be a major force influencing sustainable development. The ecological and environmental science behind the religious rituals and spiritual values should be brought out and taught to the people.

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