

ENVIRONMENTAL DETERMINISM: A CRITICAL ANALYSIS

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ABSTRACT

Nature has pertinent and consequential role in moulding the livelihood, behaviour, anatomy, nature and development of human being. On one hand, it is the suitable nature of the earth by dint of which mankind survived in this globe and on the other, the same nature snaffles lives of human beings through its destructive phenomena. Though it seems that nature has dominant control on human lives geographers as well as non-geographers are in a constant debate concerning the influence of nature upon human lives. Determinists urge that nature has utmost control over all human conducts, that is to say, naturalisation of human. However, possibilists oppose environmental determinism and they suggest that mankind has the ability to mould the nature in order to make it habitable through technology and development. This approach of possibilists is also known as humanisation of nature. At present, most of the geographers and analysts are inclined towards possibilist approach which indeed creates an alarming situation for environment. Possibilism without impediment amounts to pursuing the parochial interest of humans at the cost of environmental status-quo. In the present paper, an attempt has been made to scrutinise two concepts of nature, i.e., determinism and possibilism. Furthermore, author has also cited the examples environmental measures in order to construct both the concepts in a harmonious manner so as to ensure sustainability in the development of mankind and maintenance of the ecosystem as well.

INTRODUCTION

It is a fact that human beings are a part of being formed and bound to it by great co-operation. Of all the species of social biology one occupies the highest position because of the rationality and ingenuity that creates the greatest responsibility for the conservation of the balance. Their role as members of the biosphere and their attitudes towards the same, however, have changed over time. Friendship status has changed gradually and in recent times has changed dramatically with more scientific innovation or more accurate scientific

and technological advances.⁵¹⁸ The state of environmental control by modern man, led by advanced technology has greatly influenced what is called nature or the broader concept of natural equality. It can be asseverated that modern man has treated nature like a prostitute, without taking into account any responsibility or duty towards nature. This attitude of humans has made the enjoyment of nature quite problematic. The ecosystem has led to the worst and the existence of all species has been fuelled by the aid of technological advances and the unwilling pursuit of luxury, profit and power. For this reason, one needs to change his or her attitude toward nature to develop a situation based on justice and understanding.⁵¹⁹ The ethical behaviour of people of different cultures enables the maintenance of a harmonious relationship between man and nature that is progressively enhanced by material and cultural values. In Paul Taylor's view, a respectful attitude towards the environment exists in a very important place in the support of the ecological focus program. He recalls that a set of norms or ethical behaviour is needed to guide people in his management of the natural world.⁵²⁰ People in a state of desire must follow ethical norms and thus have an attitude of respect for creation as its ultimate attitude. The state of respect for nature by people who are regarded as moral agents is rooted in the concept of life where all-natural beings are regarded as having the rights which inevitably determines our moral relationship with Earth's living society.⁵²¹ There are various views that can be seen within geologists and non-geologists concerning the relation between man and nature. The debate is mainly bifurcated among two concepts those are Environmental Determinism and Possibilism. A of now, it is considered an inaccessible puzzle between them.⁵²² It has been controversial for years past from ancient to modern. Among geologists, many of them have placed great emphasis on the effects of determinism. Also, a large number support the idea of possibilism. However, from these perspectives, the issues that scientists have raised are huge. The naturalistic perspective takes things further to imply that abstract traits such as intelligence, personality, aggression, and sexual tendencies are also embedded in human DNA; not only the natural and technological impact of science

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⁵¹⁸P. Leelakrishnan (ed.), *Law and Environment* (5th edn, Eastern Book Company 1992)

⁵¹⁹S. Yearley, 'The "End" or the "Humanization" of Nature?' (*Researchgate*, 27 June 2005) <https://www.researchgate.net/publication/249701864_The_End_or_the_Humanization_of_Nature> accessed 4 May 202

⁵²⁰H. Onal, 'Reflections of Environmental Determinism in the Questions Prepared by Geography Teacher Candidates' (*Files eric*, 14 March 2018) <<https://files.eric.ed.gov/fulltext/EJ1179985.pdf>> accessed 4 May 2020

⁵²¹ Ibid

⁵²²H. Ronald, 'Nature Humanised: Nature Respected' (*Environmental Soceity*, 20 October 1998) <<http://www.environmentandsociety.org/mml/nature-humanised-nature-respected>> accessed 4 May 2020

and technology.⁵²³ It seems, therefore, that it opens the room for another connecting idea of probabilism; yet it is considered to be the point of error between precision and the impossibility, a consensus of the two.

From ancient times, environmental determinism has been an important concept to explain the nature-man relationships. The idea was that man is a product of nature and nature shapes the human culture. Most of the early scholars such as *Aristotle*, *Strabo*, *Eratosthenes*, and *Hippocrates* had decided the relation with an inclined approach towards determinism.⁵²⁴ For example, Aristotle believed that cold, hot and humid climates determine one's habitability. In medieval times, French scholar Montesquieu in his book *Esprit De Lois* (1748) discusses how climatic conditions control the persistence of cultural behaviours.⁵²⁵ Apart from environmental determinism, scientific concepts such as, *Darwin's theory relating to evolution*, *Newton's third law relating to cause and effect*, in the latter half of the nineteenth century also the early twentieth century influenced various geologists.⁵²⁶ This led to the foundation a modern school in France (French School of Geographical Thought) with its roots the philosophy of possibilism. *Vidal de la Blache*, *Gallois*, *Brunhes*, *Demangeon*, *Emmanuel De Martonne*, *Blanchard* promote the possibilistic approach. Thus, it portrays a person as active rather than as depended, passive agent.

HUMAN-NATURE RELATIONSHIP: PHILOSOPHICAL PERSPECTIVE

No one can deny the fact that man has been totally dependent on nature throughout the history of his life on Earth, in fact humans have a fundamental physical, emotional and intellectual dependence on nature. So it can be confidently proclaimed that the beginning of the history of man's relationship with nature is exactly the same as the beginning of human history on the planet. In the words of *Raymond Williams*, the theory of nature contains an extraordinary amount of human history. The mythologies of different cultures are not very much different in terms of nature and we can proclaim nature as everything from all mythological aspect, most of the gods and goddesses of nature or the owner of natural forces,

⁵²³ Supra.

⁵²⁴F. K. Ayichew, 'The paradox in environmental determinism and possibilism: A literature review' (*Researchgate*, 20 September 2014) <https://www.researchgate.net/publication/274696926_The_paradox_in_environmental_determinism_and_possibilism_A_literature_review> accessed 4 May 2020

⁵²⁵ Ibid

⁵²⁶ Ibid

and it is actually nature that gives them meaning.⁵²⁷ Even different religions are related to nature; man always finds and hears his composer directly and simply when he approaches the nature, in fact God is first, but nature is his carrier and deputy.

A. Hindu Philosophy:

Indian philosophy has always had a unique idea about the spiritual and physical health of people since ancient times. It comes from the Vedas, Puranas and Indian epics. Indian culture best describes the roles and responsibilities of man in nature and other celestial beings. This concept originated not only in the Vedas and epics but also from the great Indian literary works of *Kalidasa* and *Bhasa*.⁵²⁸ In the Indian sense there is no separate existence of man except nature. Men and nature are not entirely different things in Indian thought. *Rig Veda* brings a wonderful idea of the relationship of human nature to the universe. The *Rig Veda* hymns view man only as an expression of the same cosmos truth with equal importance. It is deeply rooted in the Indian philosophical thought of Monism.⁵²⁹

Nobody thought of a distinct existence in nature, which is the essence of human existence. Human being's job is to protect the environment and to accept what the environment offers. According to our ancient culture and literature, Nature was worshiped with the same importance given to other gods. Men and nature were perfectly harmonious, enjoying the abundance and delight of the elite. Sacred rivers such as the *Ganga*, *Yamuna*, *Sarasvati* and *Kaveri* were worshiped as a mother goddess from ancient times.⁵³⁰ According to Vedic tradition the cause of human existence in the universe is due to the natural blessings and compassion of the mother earth and her prosperity. Most of the Vedic psalms are human prayers to the goddess of nature. *Rig Veda* refers mainly to the Sun God (*Salithav*) the source of power, Water (*Varuna*) the god of water and other gods such as *Ushas*, *Jama*, *Rudra*, *Puusha*, and *Agni* who were also the idol gods.⁵³¹

In the adoption process, the thoughts and actions of mankind were not tainted by any deception. Men and nature were perfectly united, enjoying the abundance and bliss of the superior. The Veda wants all members of the community to have an aim and not only one's livelihood but also to achieve good goals. *Ushas*, the Dawn goddess, is associated with active

⁵²⁷V. Rajeev, 'Man and Nature in Indian Thought' (2013) IV (1) IJERC http://essence-journal.com/wp-content/uploads/Archives/Volume_IV/Issue_1/Man-and-Nature-in-Indian-Thought-.pdf accessed 4 May 2020

⁵²⁸R. Thapar, *History & Beyond* (1st edn, Oxford 2006)

⁵²⁹Ibid

⁵³⁰A.L. Basham, *The Wonder that was India* (1st edn, Rupa & Co. 1992)

⁵³¹Supra.

human life. In *Atharva Veda* the earth is the holy mother and all beings in the universe are descendants of the earth; the eternal sky is the father of the universe. The mother of the earth is to be worshiped as *Adithi*, the goddess.⁵³² The beautiful sky is my brother and it dissolves all sins and blesses the blessings of the creatures. Keep it as healthy as this is, it's the human job. Man must not be an obstacle in the movement of Nature onward.

B. Western Philosophy:

In modern and western thought man and nature are different things. Man is supreme and has the power to interfere with natural speech. India is starting from a lack of colonial power. The western concept of the world is anthropocentric where man is the foundation of the universe. The western concept of colonial times emphasized the man's philosophy of concentration. As a result, ecocentrism was replaced by anthropocentrism.⁵³³ Anthropocentrism is the placement of humanity at the centre of everything, so that other lifestyles are considered only as resources for human consumption. According to man, he is the ultimate force of nature and everything in the universe is created for himself and for his needs. The task of man is to suppress and control all other forces of nature. But contrary to Indian Hindu philosophy one does not have a distinct personality. While the western concept of nature is about exploitation, that of India is about surrender. Not long after the arrival of industrial capital one began to load the environment at an unprecedented rate.

ENVIRONMENTAL DETERMINISM: NATURALISATION OF HUMAN

This view is widely supported by many geographers as well as non-geographers from ancient times to modern times. In ancient and medieval times, the concept of geography itself and determinism was developed by non-geographers and non-scientists with simple observation. Even the most prominent scholars were scientists such as *Hippocrates, Eratosthenes, Strabo, Aristotle, Herodotus, Ptolemy*, and others. However, in modern times, geographers have openly addressed both the thesis and the subject matter.⁵³⁴ They argue that the people and their communities (environments) are inseparable. One of the broader concepts of these observers is that human behaviour is reflected in the light of the living environment in which they live. Several studies shed light on this term in relation to environmental influences on humans. Determinism is the notion that the assessment of one or more definite features

⁵³² Ibid

⁵³³ Supra.

⁵³⁴ S. Nathawat and S. Vyas (ed.), *Man, Nature and Environmental Law* (1st edn, Printwell Publishers 1988)

allows for a complete description and prediction of social or individual characteristics.⁵³⁵ Thus, in this review, the author completely cited the influence of nature on various aspects such as human life (economic activity such as trade, employment and agriculture), culture, civilization, resources, administration, politics and knowledge or intelligence, health and religion. In short, it is basically how far a person is affected by their environment. Below, the author completely outlines the effects of the physical environment on various human activities in exchange.

A. Determinism upon Livelihood

Social life is a collective term that means the process of human involvement in various fields such as trade, occupation, dress and agriculture. Determinists recognize that the most natural effect of nature upon human being is on livelihood. It can also influence the economic activity and livelihoods that are associated with their real life style and the shape of their lives. The manifestation of the environment as a climate effect is persistent, too often their self-regulation. And agricultural and sedentary health in the arid region is possible only with the help of irrigation.⁵³⁶ For example, Egypt is a Nile gift. People in cold climates use and rely heavily on something like a horse and mule for living. Animals also determine the type of social engagement like craft and their diet. This means that the weather has an impact on the habitants of earth.⁵³⁷ *Hartshorne* also has made it clear that nature affects one's daily activities. For example, valleys, high mountains and grazing plains offer the most for trans-human summer herdsman. Perceptions of climate, although moderated by the specificity of the decline, and its impact on livelihoods, are a sub-dimension of the broader relationship between apple growers and their environment. Thus, the physical environment determines the nature and type of settlement, engagement, trade, customs and clothing, agriculture etc. It also has an impact on the migration of people. Andrew argues that it is important to find out the migration patterns of groups to see what environmental conditions have arisen under them. This theory also supports that the environment has an impact on migration.

B. Determinism upon Human Health

Selected scholars perpetuate that the physical environment also has an impact on the health and talent of the people. *Emmanuel Kant* also said that physical environment affects life. For

⁵³⁵S. Singh, *Environmental Geography* (3rdedn, PrayagPustak Bhawan 2001)

⁵³⁶ Supra.

⁵³⁷ Ibid

example, the people of East Indies are blindfolded and cannot see a distance without bending their heads back to touch their back. This means that they are shorth in height.⁵³⁸ *Karl Ritter* has strongly emphasized that the Turkmen have small eye bottles due to the desert environment. He also argues that nature can affect the mind.⁵³⁹ *Huntington* states that blacks from the Caribbean had darker skin due to the weather, and that hotter climates cause more weather diseases.⁵⁴⁰ Near Cape Horn, there is a risk of malaria, yellow fever and heat because the Panamanian forest is 50 miles away. He also pointed out that nature also affects the health and longevity of people. He explained that people who live in colder climates, i.e., in higher elevations are much more likely to live than those in low climates.

C. Determinism upon Human Behaviours

Many scientific investigators have shown the obvious fact that human behaviour is also shaped by nature. Environmental awareness has been adopted by urban design to explain the effects of local behaviour. This is the basis of the concept of environmental crime prevention that seeks to change disturbing behaviours by creating an environment that is conducive to the environment. This concept is also the foundation of an active space that seeks to stimulate activity through space formation. *Bolin*, classified the people of the north as cruel, violent, and southern as revengeful, cunning. *Montesquieu* also pointed out that cold-weather people are brave, quiet, suspicious and cunning than those in warmer climates.⁵⁴¹ *Andrew* stated that climate has an impact on people's mental states, which explains the nature and social behaviour of those people. For example, hot weather is said to result in laziness, restorative behaviour and immorality, while the frequent fluctuations in average height lead to stable behaviour and work ethic. Nature also makes humans work less, as seen in human biology.⁵⁴² *Masudi* added that people living in flooded areas are homosexual and have fun while living in arid places with short air. Thus, it can be argued that man is a product of the world, and therefore nature influences human.

D. Determinism upon Civilisation

⁵³⁸C. Ballinger, 'Why Geographic Factors are Necessary in Development Studies' (*mpa.ub*, 22 January 2011) <https://mpa.ub.unimuenchen.de/29750/1/Ballinger_Clint._2011._Why_Geographic_Factors_are_Necessary_in_Development_Studies.pdf> accessed 3 May 2020

⁵³⁹ Supra

⁵⁴⁰ Ibid

⁵⁴¹ Supra

⁵⁴² Ibid

Nature has an impact on services and civilization. *Aristotle* describes the differences in the region in terms of climate variability. He also considered the people of the middle latitude to be endowed with the best of state and thus set up to rule over others, but those in warmer climates, especially in the tropics cannot govern their neighbours. He also emphasized that nature gives political power to the citizens of the area. Also, *Ellsworth Huntington* in the 20th century emphasized that the physical environment has an effect even at the level and level of civilization. These authors argue that civilization can only thrive in regions that promote climate as opposed to global warming, which hinders the attainment of a higher degree of civilization.⁵⁴³ The ecological framework allows the integration of climates and other geographical features into almost everything, from culture, regional character, and political organization to the height of civilization.

E. Determinism upon Culture

Weather is a basic determinant of culture. Culture is a combination of words that relate to language, religion, and others. Cultures in tropical areas where habitat is easy and where temperatures are thought to cause widespread growth are increasing. As the facts show, nature has a positive effect on the culture and culture of the general population, and has had little effect on their dressing and eating habits. For example, the culture of dressing and eating in cold and hot climates is different. When it comes to food, people in a cold climate eat lots of food to get calories so they can cope with the environment; but the warm place is not.⁵⁴⁴ Traditional approaches to the study of the relationship between land and religion include ecological exploration of nature, a highly ecological approach, which demonstrates the role of places in explaining the nature and emergence of different religious practices. It can also be argued that religions are not exempt from the influence of nature. For example, Buddha, who was born in a tropical region, suffering from heat and humidity, pictured his heaven as *Nirvana*—the cessation of all human activity and life. Thus, it contributes to the larger cultural and religious especially.⁵⁴⁵

F. Determinism upon Human Anatomy

⁵⁴³ S. Andrew, 'Neo-Environmental Determinism, Intellectual Damage Control, and Nature/Society Science' (*Academia Edu*, 1 May 2003) <https://www.academia.edu/173638/NeoEnvironmental_Determinism_Intellectual_Damage_Control_and_Nature_Society_Science_2003_> accessed 3 May 2020

⁵⁴⁴ Supra

⁵⁴⁵ Supra

Finally, scientists have known for years that traits and body shape, such as eye colour and hair colour are determined by a particular gene inserted into each human cell and environment. Regarding its effect on anatomy and strength, Montesquieu pointed out that cold-weather people are physically stronger and more courageous than those in warmer climates. However, people living in warmer climates are less physically fit, less educated and less skilled and inclined. *Masudi* also pointed out that nomads who live in the open air are counted for their strength and fitness than the victims in hot weather. He also compares the effect of the environment within the same climate and differs from the other climate region.⁵⁴⁶ An Afro-Arab writer, *Al-Jahiz* used his first evolutionary theory to explain the origin of various human skin colours, especially black skin, which they believe to be natural results. *Ibn Khaldun*, who also adheres to environmental determinism, in *Muqaddimah*, explained that black skin is caused by the hot climate of sub-Saharan Africa and not because of their range.⁵⁴⁷ Nature reflects not only human behaviour but also the power and power of human beings. For example, good development of the chest and arm muscles is evident in the coastal area. He stressed that people living in cold and hot weather are under environmental influence. Therefore, people in cold climates differ in terms of physical strength compared to those in warmer climates.

ENVIRONMENTAL POSSIBILISM: HUMANISATION OF NATURE

On contrary to the theory of determinism, another wing of the world's geographers and other scientists have been opposed to speculation and tried to prove their position by conveying their ideas of environmental possibilism in spite of great interest. Similarly, commentators rely heavily on physical geography, but propagators of possibilism rely heavily on human geography. Environmental possibilism is completely opposite to determinist theory. The idea of a possibilist was adopted by geologists in the twentieth century, in France, in the school of the human world. It emphasizes the human freedom to choose a pattern of human activity in the world.⁵⁴⁸ Possibilism removes the absolute approach to fiction found in determinism and maintains one's agency. Infrastructure as a part of the road and the physical space provides human responses. Possibilism at present seems to hold much more promising potential than determinism.

⁵⁴⁶ Supra

⁵⁴⁷ Ibid

⁵⁴⁸ Supra

Possibilist scholars strongly support human geography such as *Blache*, *Brunches* in France and *Bowman* and *Sauer* in the USA. In *Brunches*, human activities have transformed both the earth's organic and inorganic feature. *Fabre* also says that human activities such as hunger, civilization, etc. they are due to human contribution and not to the natural influence of nature. *Carl Sauer* and *Barrow* believe that man is no longer a perfect slave and nature has never been more than a counsellor. This theory argues that man can free himself from all environmental influences. Definitely you cannot plant bananas on a pole, nor pineapples in Green land. This does not mean that one can never be completely free of the influence of nature. It is not the world that goes back to man, but the man finds himself immersed in the effects of his system that resembles habit and thought.⁵⁴⁹

According to the stereotype, cruelty or cruelty to animals is not in itself wrong, but it is wrong in the sense that such action against a person by animals can cause them to act in the same way as other humans. However, Jewish Christians were encouraging and maintaining a kind and considerate attitude toward the non-human nature. *Rene Descartes*, a 17th century French physicist and scientist rejected the fact that it is wrong to cause suffering to animals because animals will not suffer from it. All the suffering in the world is due to Adamic sin and since the animals were tied to that sin they cannot suffer.⁵⁵⁰ Therefore, according to *Descartes*, the act of killing or treating animals, i.e. nature is cruel or wrong. Both humans and animals are part of nature, but the unique character of humans is their understanding of the nature. According to *Hegel*, this decline or degradation of nature is actually appreciated by man because nature is man-made or made strange to man himself.⁵⁵¹ Such an invention of human nature or man-made nature gives him an extra measure of human attack on the environment that allows him to overcome and soften it according to his desires.

In the controversy that exists between the opinions of the geographers, possibilists desperately try to lie about the idea of who is the winner. They argue that man is not a perfect servant of his nature. As the determinists say humans are complete puppets of nature. For example, the Eskimos are unique to the Siberian Tundra Tribes, and similarly to the Pygmies of the jungle of central and central Africa, Negros.⁵⁵² The other side of the myth is the

⁵⁴⁹ Ibid

⁵⁵⁰ A. Jain, 'Human Attitude Towards Nature' (*Shodhganga*, 14 April 2001) <https://shodhganga.inflibnet.ac.in/bitstream/10603/137446/6/06_chapter_02.pdf> Accessed 4 May 2020

⁵⁵¹ Ibid

⁵⁵² *Supra*

illusion of determining that an agricultural plant is most active in a country used in Europe, Asia and North America, which produces by human effort. The people of Amazon also do not invent the Negros feature despite the similarities in the environment. Also, space relations are also dominated by man; for example, in eastern and western America, their attention varies before and after the opening of both Suez and Panama canals.⁵⁵³

ENVIRONMENTAL DEGRADATION DUE TO POSSIBILIST APPROACH

Geographical determinism forces at least geography to focus on nature, and if the question is asked who decides to destroy geography, then everyone should blame the doors of hope. Thus, inequality has attempted to increase the role of culture and to overlook the importance of the natural environment. In the above section we understand that the potent form of anthropocentrism was persistent in society, especially in the western society that produced environmental degradation.⁵⁵⁴ Gradually it felt that such an anthropocentric philosophy of life needed a new shift. Pollution is one of the biggest accidents that people face today due to and contributes to global climate change. Depending on the concept of Environmental Possibilism this happens in all countries and affects the environment of human life. In all countries, an increasing number of people are contributing to the pressure of resources. Due to a decline in resources due to a focus only on development and economic needs the growth of the world economy leads to pollution and causes undesirable changes in the physical and biological function of air, land, and water; all of which affect the natural environment of the country and also lead to environmental health problems.⁵⁵⁵

Nature provides all the essentials for life so there has been a close connection between nature and humans. Without the natural environment and the quality of human life is impossible in the world. Since remembering the time, the man has made a concerted and determined effort to utilize natural resources and change the environment so that the adverse impact caused by high temperatures and food in front of you can be minimized.⁵⁵⁶ In the quest to make a comfortable life a man has been exploiting the agricultural, industrial and infrastructural environment by the causes of environmental exploitation and natural resources. Human

⁵⁵³ Ibid

⁵⁵⁴ Supra

⁵⁵⁵ V.K. Agarwal, 'Sustainable Development and Environmental Protection: Some Reflections' (1998) AIR Jour.

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⁵⁵⁶ A.A. Desai, *Environmental Jurisprudence* (1st edn, Vikas Publishing House 1998)

activities make up a huge amount of waste products and good products that accumulate over a long period of time and can be harmful to the ever-growing natural ecosystems, animals and humans. All parts of the natural environment including air and soil are exposed to accumulated toxic pollutants. Rapid and disorganized industries have caused factories, emitted reckless ashes and toxic chemicals, made life hard on the world. In discriminate use of chemical fertilizers and pesticides has added to the problem.⁵⁵⁷ Many of the chemicals used in the specific growth of plants and animals have become hazardous as they increase dramatically, polluting the soil, water and air leading to the extinction of many species. Modern lifestyle has given rise to the problem of greenhouse gases, which causes melting of glaciers in the valleys and thus raises the level of the oceans that endanger global health.⁵⁵⁸

ENVIRONMENTAL MEASURES TO CONCILIATE CONFLICTING INTEREST

Immutable strikes and their impact on the natural environment do not know the political boundaries, pollution can spread far and wide from its source location. Smoke produced in one country can lead to acid rain in another remote area, a reduction in deforestation, global warming and the destruction of biodiversity will definitely affect the world. Therefore, it is necessary to take measures to protect the environment at the global level. Recognizing their responsibilities in this important international organizations such as the United Nations have already taken action and are working for a better and greener world. The *Stockholm Conference* on Human Environment and the Earth Summit held in *Rio de Janeiro* can be cited here as bold attempts to make the global community aware of environmental issues and make them responsible for environmental protection.⁵⁵⁹

Though the concept of sustainable use of the natural resources is an ancient one, the principle of sustainable development received impetus for the first time in modern developmental era through the Stockholm Declaration during the United Nations Conference on Human Environment in 1972. The World Conservation Strategy prepared by the World Conservation Union (IUCN) in 1980, after receiving advice and assistance from the United Nations Environment Programme and World Wild Fund, gave further strength to the concept of sustainable development. The concept was very well explained and defined in the Report of the World Commission and Development. The report was named as *Our Common Future* of

⁵⁵⁷S.K. Verma, 'Access to Biological and Genetic Resources and their Protection' (2001) JILI 1

⁵⁵⁸U.Baxi, 'Quest for Environmental Justice' (1990) Alig. L.J. IX

⁵⁵⁹L. K.Caldwell, *International Environment Policy* (2nd edn, Affiliated East-West Press Pvt. Ltd 1990)

1987.⁵⁶⁰ The Commission was chaired by the then Prime Minister of Norway, G.H. Brundtland and as such the report is popularly known as 'Brundtland Report'.⁵⁶¹ Thereafter, in 1991 the World Conservation Union, United Nations Environment Programme and World Wide Fund for Nature, jointly came out with a document titled as *Caring for the Earth* which is a strategy for sustainable living and defines sustainability as a characteristic or state that can be maintained indefinitely whereas development is defined as the increasing capacity to meet human needs and improve the quality of human life.⁵⁶² This principle of sustainable development involves various other principles which tries to conciliate the interest of the humans and nature.

A. Precautionary Principle:

The Precautionary Principle is one of the important principles under the concept of sustainable development. According to the precautionary principle, when reasonable scientific evidence of any kind provides enough reason to believe that an activity, technology or substance may be harmful, action should be taken to prevent such harm. If one waits for scientific certainty, people may suffer and die, and damage to the natural world may be irreversible.⁵⁶³ The Indian Supreme Court has accepted in *Vellore Citizens Welfare Forum v. Union of India*,⁵⁶⁴ that the Precautionary Principle is part of the environmental law of the country. The Court explained the Precautionary Principle in the context of the municipal law as following. Environmental measures by the State Government and the statutory authorities must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The onus of proof is on the actor or the developer/industrialist to show that his action is environmentally benign. In Taj case,⁵⁶⁵ the Supreme Court was dealing with the problem of protecting the Taj Mahal from the pollution of nearby industries. The Court applied the Precautionary Principle as explained by it in Vellore case and observed the environmental measures must anticipate,

⁵⁶⁰ A.K.Tiwari, *Environmental Law in India: Contribution of the Supreme Court* (1st edn, Deep & Deep Publications Pvt. Ltd. 2006)

⁵⁶¹ Ibid

⁵⁶² R.G. Paidá, 'Environmental Jurisprudence' (1999) IBR 165

⁵⁶³ C. Barton, 'The Status of Precautionary Principle' (1998) Harv. Envtl. L. Rev. 509

⁵⁶⁴ *Vellore Citizens Welfare Forum v Union of India* AIR 1996 SC 2715

⁵⁶⁵ *M.C. Mehta v Union of India* AIR 1997 SC 734

prevent and attack the causes of environmental degradation. In *Calcutta Tanneries case*,⁵⁶⁶ the Court ordered the polluting tanneries operating in the city of Calcutta (to relocate themselves from their present location and shift to the new leather complex set-up by the West Bengal Government. In *Badkhal & Surajkund Lakes case*,⁵⁶⁷ the Supreme Court held that the Precautionary Principle made it mandatory for the State Government to anticipate, prevent and attack the causes of environment degradation. The Court had no hesitation in holding that in order to protect the two lakes from environmental degradation it was necessary to limit the construction activity in the close vicinity of the lakes.

B. Polluter Pays Principle:

The polluter pays principle is one which is aimed at ensuring that the costs of environmental damage caused by polluting activities are born in full by the person responsible for such pollution, the polluter. The principle means the polluter should pay for the administration of the pollution control system, and the polluter should pay for the consequences of the pollution-for example, compensation and clean-up. Supreme Court of India for the first time applied expressly the polluter pays principle in the case of *Indian Council for Enviro Legal Action v. Union of India*,⁵⁶⁸ and held that the responsibility for repairing the environmental damage was that of the offending industry. The Court further held that sections 3 and 5 of the Environment (Protection) Act, 1986 empowered the Central Government to give directions and take measures for giving effect to polluter pays principle. In *Vellore Citizens Welfare Forum v. Union of India*,⁵⁶⁹ the Supreme Court declared in unequivocal terms that the polluter pays principle is part of the environmental jurisprudence of India.

In *M. C. Mehta v. Kamal Nath*,⁵⁷⁰ the Court after referring the Vellore case reiterated, *one who pollutes the environment must pay to reverse the damage caused by his acts*. It was proved in the case that Sapan Motels Private Limited used earth-movers and bulldozers to turn the course of the river in order to save the Motel from future floods. In *S. Jagannath v. Union of India*,⁵⁷¹ the Court once again applied the Polluter Pays Principle and passed orders against the shrimp farming culture industry found guilty of Polluting Coastal areas. The Central Government was directed by the Court to constitute an Authority under section 3(3)

⁵⁶⁶M.C. Mehta v Union of India (1997) 2 SCC 411

⁵⁶⁷M.C. Mehta v Union of India (1997) 3 SCC 715

⁵⁶⁸Indian Council for Enviro Legal Action v Union of India AIR 1996 SC 1446

⁵⁶⁹Vellore Citizens Welfare Forum v Union of India AIR 1996 SC 2715

⁵⁷⁰M. C. Mehta v Kamal Nath (1997) 1 SCC 388

⁵⁷¹S. Jagannath v Union of India (1997) 2 SCC 87

of the Environment (Protection) Act, 1986 to deal with the situation created by the shrimp culture industry in the Coastal States and Union Territories. *The Calcutta Tanneries* case⁵⁷² is yet another illustration where the Court applied the Polluter Pays' principle as explained by it in Vellore case. The matter before the Court involved is relating to pollution caused by about 550 tanneries located in the adjoining areas in the eastern fringe of the city of Kolkata. The Court in its order directed the State Government to appoint an Authority/Commissioner to assess the loss to the environment in the areas affected by the pollution caused by the tanneries. It was held by the Court that the said authority should determine the compensation to be recovered from the polluter-tanneries as environment.

C. Inter-Generational Equity:

The Principle of intergenerational equity generations images that each generation has to use the natural resources in a sustainable way so that the coming generations get their due share and the existing civilization further continues happily its onward journey.⁵⁷³ The Indian Supreme Court has also applied the Principle of Intergenerational equity while delivering environmental justice. In *Rural Litigation and Entitlement Kendra v. State of Uttar Pradesh*,⁵⁷⁴ the Court, while dealing with indiscriminate tapping of natural resources observed that it has always to be remembered that these are permanent assets of mankind and are not intended to be exhausted in one generation. The Court recognised the significance of the concept of Sustainable Development and Intergenerational equity once again in *State of H. P. v. Ganesh Wood Products*.⁵⁷⁵ Here the matter was relating to the significance of forest wealth and its impact an environment and ecology. In *S. Jagannath v. Union of India*,⁵⁷⁶ the Court dealt with the problem of pollution caused by shrimp farming culture industries in coastal areas. The Court was of the view that there must be an environmental impact assessment before grant of permission to install commercial shrimp farms, and such assessment must take into consideration the intergenerational equity.

D. Public Trust Doctrine:

Professor Sax is of the view that the Public Trust Doctrine often imposes three kinds of restrictions on governmental authority. Firstly, the property subject to the trust must not only

⁵⁷²M.C. Mehta v Union of India (1997) 2 SCC 411

⁵⁷³K.I. Vibhute, 'Environmental, Present and Future Generations: Intergenerational Equity' (1997) JILI 281

⁵⁷⁴Rural Litigation and Entitlement Kendra v State of Uttar Pradesh AIR 1987 SC 359

⁵⁷⁵State of H. P. v Ganesh Wood Products (1995) 6 SCC 363

⁵⁷⁶S. Jagannath v Union of India (1997) 2 SCC 87

be used for a public purpose, but it must be held available for use by the general public, Secondly, the property may not be sold, even for a fair cash equivalent, and thirdly, the property must be maintained for particular types of uses. This can be traced back to the roman concept of *res nullius* or *res communis*, i.e., natural resources were either owned by no one or by everyone in common respectively. In *M. C. Mehta v. Kamal Nath*,⁵⁷⁷ and also in *M. I. Builders v. Radhey Shyam Sahu*,⁵⁷⁸ Supreme Court of India ruled that the aesthetic use and pristine glory of the natural resources, the environment and the eco systems of our country cannot be permitted to be eroded for private, commercial or any other use unless the courts find it necessary, in good faith, for the public good and in public interest to encroach upon the said resources. That apart, various other principles are also there which involves *strict liability* helps to protect environment and also to secure the interest of human beings in a sustainable manner. Through this principle the concept of *mens rea* has been negated to consider human being responsible for human degradation. However, the principle of strict liability is subject to a few restrictions, viz., plaintiff's own fault, act of God, common benefit or act of third party. This principle was applicable in India as in England prior to the judgement of *Oleum Gas Leak Case*.⁵⁷⁹ This case incorporated the concept of *Absolute Liability*, which makes human being responsible for causing harm due to environment without any exceptions to the rule. Thus, these principles aid the human being to humanise the nature in such a manner so as to maintain sustainability in the existence of mankind.

CONCLUSION

In a blind race to fulfil his lust for materialism man has gradually developed an attitude that has made him forget the saying *live and let others live*. His unwavering march towards scientific and technological advances has become detrimental to environmental interest. Man's efforts to achieve his materialistic ambition are reflected in his endearing deeds such as deforestation, the use of chemical fertilizers in agriculture, the excessive use of hydrocarbons, industrial growth and urbanization. Such pervasive human activities have harmed the environment. The current situation is disturbing and needs the right solution. It is time for one to become aware of the causes of the current environmental crisis and bring about internal change. Natural exploitation leads to destruction that ultimately destroys the

⁵⁷⁷M. C. Mehta v Kamal Nath (1997) 1 SCC 388

⁵⁷⁸M. I. Builders v Radhey Shyam Sahu AIR 1999 SC 2468

⁵⁷⁹M. C. Mehta v Union of India AIR 1987 SC 108

smooth life of its kind. It is high time to alter one's attitude towards the environment, e.g. from self-centric to eco-centric. The present paper has analysed the paradox and difference between the distinctive concepts of determinism and possibilism. It can be seen that human conduct is manipulated by physical environment and it can neither be denied that human made the earth much habitable. However, it has been seen that inclination to possibilism or humanisation of nature may seriously amount to environmental degradation which will indeed affect the individual's life. Thus, these two views are required to elasticize so as to conciliate these two concepts in a harmonious manner. Therefore, human beings are not prohibited to mould their life styles through the advent of technologies but by way of maintaining a sustainability in their development. Therefore, in order to make the world a peaceful haven for all living beings, humans must skilfully, legally and judiciously divert the power gained through scientific and technological progress so that ecological harmony remains undisturbed and such a state of harmony can be attained by connecting our critical behaviours with our newly acquired scientific power and technology.