International Journal of Information Movement *Vol. 9 Issue VII* *(November 2024)*
Website: www.ijim.in *ISSN: 2456-0553 (online)* **Pages 1-8**

UNDERSTANDING ECOLOGY AND ITS CONNECTION TO SUSTAINABLE DEVELOPMENT

Priya Prabhat
Research Scholar
Department of Philosophy, Jawaharlal Nehru University
Email-id: priyaprabhat4@gmail.com

Abstract: The objective of the paper is to promote new attitude towards looking nature and culture relationship and innovative methods to promote conventional economic reasoning. There are many contested issues regarding this subject, but I will limit my research by discussing only two- first, is it possible to view the concept of sustainable development under the lens of ecology? Second, does in doing so we are following non-technological paradigm?

Basically, this paper deals with important sections. First section talks about ecology and sustainable development. Second section mentions how ecology is related to philosophy. Third section talks about man and nature. Fourth section talks about different approaches to nature. Fifth section mentions ecosystem out of gear. Sixth section talks about studying ecology means studying economics of nature. In conclusion, various important observations are drawn. It is a way of living that determines policy making in relation to environment to curb environmental problems. Simple and sustainable living gives a way towards this.

Keywords: Ecology, Ecosystem, Environment, Sustainable development

1.0 Introduction

Ecology is the study of the relationships between living organisms, including humans, and their physical environment; it seeks to understand the vital connections between plants and animals and the world around them. Ecology also provides information about the benefits of ecosystems and how we can use Earth's resources in ways that leave the environment healthy for future generations.

"Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs."[i]

The concept of sustainable development can be interpreted in many different ways, but at its core is an approach to development that looks to balance different, and often competing, needs against an awareness of the environmental, social and economic limitations we face as a society.

All too often, development is driven by one particular need, without fully considering the wider or future impacts. We are already seeing the damage this kind of approach can cause, from large- scale financial crises caused by irresponsible banking, to changes in global climate resulting from our dependence on fossil fuel-based energy sources. The longer we pursue unsustainable development, the more frequent and severe its consequences are likely to become, which is why we need to take action now.

Living within our environmental limits is one of the central principles of sustainable development. One implication of not doing so is climate change.

But the focus of sustainable development is far broader than just the environment. It's also about ensuring a strong, healthy and just society. This means meeting the diverse needs of all people in existing and future communities, promoting personal wellbeing, social cohesion and inclusion, and creating equal opportunity.

Not necessarily. Sustainable development is about finding better ways of doing things, both for the future and the present. We might need to change the way we work and live now, but this doesn't mean our quality of life will be reduced.

The way we approach development affects everyone. The impacts of our decisions as a society have very real consequences for people's lives. Poor planning of communities, for example, reduces the quality of life for the people who live in them.

Sustainable development provides an approach to making better decisions on the issues that affect all of our lives. By incorporating health plans into the planning of new communities, for instance, we can ensure that residents have easy access to healthcare and leisure facilities.

1.1 General Introduction

Ecology is a term derived from the Greek word *Oikos*, meaning 'house' or 'place to live'. It is the study of the relationships between organisms and their environments or, broadly speaking their houses. Life and environments are interdependent. If there were no life on earth, its environment today would have been different. Conversely, if the environment had not changed, the earth would have been devoid of many animals and plant species which inhabit it now.

Ecology can also be defined as the study of ecosystems, or self-regulating communities of different kinds of living beings interacting with one another and with their non-living environment.

The word 'ecology' is first proposed by the German biologist Ernst Haeckel in 1869. Before this also, an age of biological renaissance one can see as there were scientists who worked on this subject but the term 'ecology' was not in use. Hippocrates published a paper entitled "On Air, Water and Places"[ii]. Aristotle studied the habits of animals and environmental conditions. Theophrastus may be regarded as the first ecologist in history because he wrote on the communities, in which plants are associated, the relation of plants to each other and to their physical environment.

In simple sense, one can define ecology as the art and science of seeing things as a whole. For example- our body is an organic whole in the sense that if one part of a finger of our hand gets burnt over flame, then effect can be felt in whole body as each part is connected with the whole body. Though, we completely ignore this deep sense of interconnection with the universe but it is very much there in the cosmos. This invisible web of connection is called "system living" which is the core principle of ecology.[iii]

1.2 How ecology is related to philosophy:

Philosophy as a science is related to life as a whole and so the life of all living beings. Ecology is also related to interdependence of organisms (living bodies) and the environment. So, the two humanitarian sciences are related to one another. Thus, it was a philosopher who first thought about ecology. Ecology is concerned with the understanding of the whole of nature or reality. This is the main business of philosopher as well.

Though Ecology is primarily empirical it is impossible to make an exhaustive empirical study of the infinitely complex workings of nature. Prof. A.G. Javadekar remarks that "whatever cannot be fulfilled empirically has to be complemented speculatively as far as possible in consonance with and without undermining our empirical knowledge of nature". Thus, Ecology also requires speculative thinking like philosophy.

1.3 Man And Nature

The primitive man used to live in harmonious relation with nature. He deified nature but, in his deification, there was harmonious relation with nature. In the primitive societies, the tradition was thought to keep a harmonious relation with nature. The Indian tradition of considering the cow as the mother, as a member of the family and utilizing cow-dung also for the purpose of fuel and fertilizer, is also an example of ecological tradition. For centuries, there was co-existence between nature and living creatures. There is an order in the nature and humans, like other living organisms have a place and role to play.

The conflict between man and nature that is, the problem of Ecology started when man looked upon nature as a machine during the Newtonian period. As Prof. Javadekar observes, "Neither evolutionary hypothesis nor, dialectic relation between man and nature could imagine the animistic attitude of wholeness. With the development of these views' nature became an epitomic example of unconscious existence. What is necessary is to see how nature is not an unconscious object alien to human existence and subject to be treated as merely a means for his material well-being".

For centuries, there was co-existence between nature and the living creatures, but with the advent of civilization, man's mystery over science and technology, consumerism and unprecedented and unbridled growth of population, there arose the disturbance in the harmonious relationship between the living creatures and nature. The environment has been polluted. Environment affects all facets of human living-physical, biological, social and cultural. Our existence depends on our interaction.

with the environment. As the quality of the environment gets better, the quality of human life in the same way

gets improved.

Man, and nature are equal partners in the building of culture and with this consciousness nature is to be treated at least in a friendly manner, though it deserves to be treated reverentially. In the search for harmony with nature, man is, in a way, in search of his soul. The inner and outer environments of man are in conflict as it were, as a result of changes in the physical environment. Hence, man finds himself at times not properly adjusted to the external physical environment. Paradoxically, this conflict and lack of harmony between the external and the internal environment tends to create unstable equilibrium. It is necessary therefore to restore the internal harmony of man and nature. This harmony is/essential since disharmony tends to create violence. As the UNESCO preamble says "wars start in the minds of men, so it is in the minds of men that we must build a peaceful disposition."[iv]

1.4 Different approaches to nature:

Man tries to follow the order which is inherent in nature. This order or knowledge is expressed in the process of nature; nature cannot be dubbed as unconscious, insentient or unintelligent. In Indian Philosophy the whole Reality is named as Brahman which comes from the root *Brh* that is, to grow. An insentient unconscious thing cannot grow. The attributes attached to this Reality are Saccidananda that is, existence, consciousness and bliss. Though nature may not show consciousness or self-awareness, it does not mean that nature is not conscious.

Philosophically this position was accepted by Pantheist like Spinoza, Leibnitz, Bradley and others in Western Philosophy and Upanishads as well as Vedanta in Indian Philosophy but with ecological imbalance now, there is emerging awareness among people globally that earth is itself is a living conscious being of which we are parts. Earth is dynamic. It has its own metabolic needs and vital processes which we humans, as rational beings should think of preserving from devastation.

"Ultimately human consciousness is nature's own consciousness. Nature has made man know, man has learnt from nature and the capacity to learn from nature also he owes to nature."[v]

Yet it is impossible to know all that nature knows. As Newton has said, "There is a vast ocean of knowledge and I have got only a particle of sand from the sea-shore of the ocean of knowledge." Nature as a whole far surpasses mankind even as a whole."[vi]

Scientific approach to nature though practically as well as theoretically very important and valuable, is not the only way of understanding nature. As Prof. Javadekar observes "The relationship of man to nature in scientific approach is cognitive, empirical, analytical and conceptual. This relationship is legitimate but it is not all."

Nature is to be perceived and viewed from the artistic, moral, religious, mystic and other approaches. These approaches are as important and valid as the scientific approach. These are axiological approaches. We have now shifted from the mechanistic view to a holistic and ecological view of the world. It is a shift in human perception.

1.5 Eco-system out of gear:

We have exploited nature like anything. In the blind race of progress, we have emptied so many resorts of nature. We have used up not only the natural wealth of our share but of so many generations. The results of ecological imbalance will harm the generations to come! We have polluted air, water, food, land and even the milk of the mother! The depletion of ozone layer, acid rains and the increasing heat of the earth has put the existence of man in danger. Man considers himself to be a rational animal but no other animal has made his cave so dirty and poisonous as man has made!

Today, the majority of the people in all parts of the world are breathing polluted air. Incomplete combustion of fuels, remittance of large quantity of smoke and gasses through different industrial activities and various other operations such as buildings of wastes etc., spreads hundreds of tons of pollutants in the air, every year. In result there is widespread increase of diseases mostly in city

living gets increased, common ones are-problem in throat, irritation in eyes and unpleasant odors. Some of the pollutants pass deep into our respiratory system affecting the delicate mechanism which supplies us with oxygen and carries away carbon dioxide. Progressive destruction of this system leads to m\any diseases such as emphysema and chronic bronchitis.

Nuclear energy which was hailed as a marvelous gift of science to humanity is now being viewed as a menace. There are studies which show that nuclear testing has been responsible for many infant deaths due to the fallout of strontium-90 which has long been recognized as a hazard to man. On ingestion it goes straight to bone along

with calcium and the fear is that it might many years later give rise to leukemia and bone-marrow cancer.

"Our mad race for economic development through industrialization at the cost of environment would ultimately lead to disaster. If the present rate of pollution is not checked the man will see, eat and breathe pollution so the solution lies in harmonizing of economic development with environment. The Government of India has also formed a new "Department of Environment, in November 1980."[vii]

Indiscriminate use of pesticides upsets the very delicate ecological balance, creating all kinds of unforeseen repercussion. The chemical controls on plant and insect life often means that man ends up poisoning himself. Similarly, the use of chemical fertilizers has deprived the soil of the natural ability to fix nitrogen.

The destruction of millions of trees (without due care to replant them) for fire wood and in building, roads, towns and cities, the burning of fossil fuels to meet the increasing needs of traffic and transportation and the use of chemical measures and pesticides to speed up agricultural production, and the use of nuclear power to meet the ever increasing demands for the use of nuclear power to meet the ever increasing demands for energy are some of the prime factors responsible for throwing the present day eco-system out of gear.

Deforestation activities are continuing at the alarming rate of 1.5 million hectare per year to meet the demand for more land for agriculture and food production. Millions of tons of surface soil is

lost through wind and water erosion per year. Such ecological imbalances leading to environmental degradation affect the climate.

The manufacture of hundreds of consumer and luxury products results in various kinds of pollution. More and more new finished products are being produced every year for the comfort and luxury of man. The wastes produced during their manufacture are blown away by the wind or carried down the river stream without any steps being taken to dispose them off safely. Added to these is noise pollution.

The major causes of pollution are industrialization, urbanization and motorization. "The global environmental problem is not merely a problem of pollution. The overemphasis on the material aspects of our civilization is perhaps the cause and pollution are the effect."[viii]

Disturbance in any component of the environment is likely to have a harmful effect on the ecosystem. For the conservation of the ecosystem, it is essential that the environment should be conserved. Man is a part of the environment and of the ecosystem and also needs to be conserved.

"In November 1992, 1575 Scientists, including 100 Nobel Prize winners released a "Doomsday Alert". They warned that if exponential population growth and threats to the Earth's atmosphere, oceans and fish, water resources, soil, forests and living species did not stop and if responsible stewardship of the earth did not occur, the global environment would be irretrievably mutilated by the year 2030."[ix]

1.6 Ecology is the study of the economics of nature:

"Lester R. Brown in his thoughtful book, The Global Economic Prospect, points out that the earth's principal biological systems are four – fisheries, forests, grass, grasslands and croplands – and they form the foundation of the global economic system. In addition to supplying our food, these four systems provide virtually all the raw materials for industry except minerals and petroleum derived synthetic. In large areas of the world, human claims on these systems are reaching an unsustainable

level, a point where their productivity is being impaired. When this happens, fisheries collapse, forests disappear, grasslands are converted into barren waste lands and croplands deteriorate."

In conquering nature, Technology becomes a way of life and utility value for man. Economic rate of growth, increase in per capita income and national wealth are the criteria of the measurement of the general welfare. Thus, quantitative aspects become more important than the quality of life. The concept of welfare should not be considered only in quantitative terms but should include non- measurable qualities of life.

The problem is due to the great appetite that modern man has shown for the use of technology in material growth. Economic growth at the exponential rate has been the standard for modern progress. We cannot give up economic development, however there has to be a sense of proportion between the supply and demand of resources on the one hand, and the impact of their use on environment on the other. The UN Declaration makes this point explicit when it says:

"A point has been reached in history when we must shape our actions throughout the world with a more prudent acre for their environmental consequences. Through ignorance or indifference, we can do massive and irreversible harm to earthly environment on which our life and well-being depend."[x]

The throw-away culture of industrialization and Westernization has led us to so much of waste that the earth cannot bear any more. The northern developed countries of the world are using up 70% of products of the world though having only 25% of the world's population. While the Southern undeveloped countries of the world are using only 30% of products of the world.

Economic theories should be ecologically sound providing adequate material environment for man so that man lives as a creative being. Emphasis should be on an adequate distribution system having into consideration what various ecological systems produce. The whole economic system may not be necessarily competitive. Conservation as an ideal for nations and international economic order seems logical.

Mahatma Gandhi suggested self-sufficient decentralized economy both from socio-economical and ethical grounds. He believed that big business and high technology were inimical to the growth of such a dispersed economy and advocated the use of as simple and as few machines as possible.

2.0 Conclusion

a) Science and technology are neutral; their human misuse must be stopped. Science has ethical obligations to sustain Humanity and Environment. It has to be used as a strategy to command future.
b) Exhaustible resources need to be conserved; Wastage and misuse of resources must be avoided, and flow resources must substitute fund resources.
c) Population growth has to be checked; quality of man – power has to be enhanced.
d) Science must promote sustainable economic development – -to sustain men at reasonable comfort levels; -to conserve Environment and its resources; -to stop environment degradation; -to meet the needs of the present, without compromising the ability of future societies to obtain their needs; -to manage the environmental systems within the limits of the natural laws to draw upon its endowments; -to stabilize the environment of life at optimal utilization levels; -to encourage the use of science and technology aesthetically, for human welfare and prosperity.

To meet the ever-increasing needs of the energy for the welfare of the growing masses, new energy sources will have to be tapped. Renewal and non-traditional sources of energy like solar radiation, wind power, tidal power, bio-gas and geothermal energy will have to be urgently explored and nuclear energy will need to be shunned to protect man from its harmful effects.

Sustainable development ecology is the environmental component of sustainable development, which is the process of balancing the needs of the present with the needs of future generations. Ecological sustainability is the maintenance of the Earth's ecosystems, including the quality of air, water, and land, and the diversity of plant and animal communities.

Here are some principles of sustainable development ecology:
Intergenerational equity.

The current generation should ensure that the environment is maintained or improved for the benefit of future generations.

3.0 Precautionary principle

If there is a threat of serious environmental damage, measures should be taken to prevent it, even if there is not full scientific certainty.

3.1 Ecosystem carrying capacity

The production of goods and services should not exceed the capacity of ecosystems to regenerate resources.

Some ways to achieve sustainable development include:

- Using renewable resources like solar, wind, and biogas to generate electricity instead of fossil fuels.
- Weighing environmental factors more heavily in the valuation of assets and services.

4.0 Bibliography

i. Anand, Vaishali. *Environment and Ecology*, India: McGraw Hill Education Private Limited, 2020.
ii. Bharucha, Erach (ed). *Textbook of Environmental Studies for Undergraduate Courses*. India: University Grants Commission University Press Ltd., 2nd ed., 2013.
iii. Bajwa, G.S. "*Problem of Environmental Pollution and its Management in India*", World Environment Series, Environmental Pollution and Management (ed); L. Mohan (Ashish Publishing House, New Delhi, 1994.
iv. Elliot, Robert. "Environmental Ethics" in Singer Peter (ed.) *A Companion to Ethics*. Oxford: Blackwell Publishers Ltd., 1993.
v. Galbraith, J.K. *On the Nature of our Industrial Civilization*, New Delhi: Industrial State, London, 1967.
vi. Javedkar, A.G. *Philosophical Ecology*, Indian Philosophical Quarterly, Vol. IX No. 2, Poona University, Poona, 1982.
vii. Light, A. "Contemporary Environmental Ethics: From Metaethics to Public Philosophy,"*Metaphilosophy* 33 (2002).
viii. Palkhiwala, Nani. *The Ailing Planet Green Movement's Role*, Indian Express Nov.24, 1994 (Bombay).
ix. Rolston, H, III, *Environmental Ethics*, Philadelphia: Temple University Press, 1988.
x. Smita, Joseph Wayne. "*The Beginning of Sorrows*" Darshan International Vol. XXXII Oct. 1992 Item No.4.

---

[i] Joseph Wayne Smita, "The Beginning of Sorrows" *Darshan International* Vol. XXXII Oct. [1] 1992 No.4, p.58.
[ii] A.G. Javadekar, "Philosophical Ecology", *Indian Philosophical Quarterly*, Vol. IX No.2 Jan 1982 (Poona University, Poona), p.179.
[iii] Ibid., p-183.
[iv] J.K. Galbraith, *On the Nature of our Industrial Civilization*, (New Delhi Industrial State, London, 1967), p.45.
[v] Ibid., p.181.
[vi] G.S. Bajwa, "*Problem of Environmental Pollution and its Management in India*", World Environment Series, Environmental Pollution and Management (ed); L. Mohan (Ashish Publishing House, New Delhi 110 026, 1989), p.33.
[vii] Joseph Wayne Smita, "*The Beginning of Sorrows: The Ecological Crisis and the Prospects of Human Survival*" Darshan International; Vol. XXXII Oct.1992 No.4, p.53.
[viii] Nani Palkhiwala, *The Ailing Planet Green Movement's Role*, Indian Express Nov.24, 1994 (Bombay), p.2.
[ix] Vaishali Anand, *Environment and Ecology* (India McGraw Hill Education Private Limited, 2020), pp.334-45.
[x] Erach Bharucha, (ed). *Textbook of Environmental Studies for Undergraduate Courses*, India: University Grants Commission University Press Ltd., 2nd ed., 2013, p.13.