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LEADING ENVIRONMENTAL CHALLENGES FOR SUSTAINABLE DEVELOPMENT

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Abstract: In recent years, the environmental discussion has gained significant place in formulating development literature. The worsening environmental catastrophes and the growing environmental consciousness led to the emergence of a new model of development known as 'sustainable development'. The modern society has reached a critical stage where the future direction is to be very carefully planned in order to restore and maintain the balance between environment and development. Thus sustainable development is the need of present world. There are some leading environmental challenges such as global warming, ozone depletion, toxic pollution, erosion of biodiversity and alarming increase in the emission of certain greenhouse gases (CO_2, CFCs, methane and nitrous oxide). It is essential to resolve these concerns urgently to achieve sustainable development. The present study has been emphasis leading environmental challenges for sustainable development and based on secondary data analysis such as books, magazines, newspapers and official records of Indian governments and international organizations. The present paper begins with introductory information of sustainable development and environment, followed by a discussion on various leading environmental challenges to sustainable development. The final section of the paper examines the major limitations of the sustainable development model in dealing with the environmental challenges and also presents some possible solutions to overcome those limitations.

Keywords: **Environment, Sustainable Development, Global Warming, Pollution**

1. INTRODUCTION

In recent years, the environmental discussion has gained significance in formulating development literature. The current trend in population growth, consumerism and socio-ecological disorder has raised serious concern about the long-term sustainability of the biosphere. If, in the future, human requirements are to be met in a sustainable manner, it is essential to resolve these concerns urgently ***(Joshi and Verma, 1998:9, 36).*** M. Shamsul Haque (2000) wrote that the worsening environmental catastrophes and the growing environmental consciousness led to the emergence of a new model of development known as 'sustainable development'.

The modern society has reached a critical stage where the future direction is to be very carefully planned in order to restore and maintain the balance between the environment and development ***(Joshi and Verma, 1998:17).*** Thus the proponents of sustainable development tend to explore the environmental costs of developments activities, prescribe environment friendly policies, suggest institutional and legal measures for environmental protection, and publicize the principles of sustainability through international forums and publications. The present discussion has been emphasis leading environmental challenges for sustainable development.

2. SUSTAINABLE DEVELOPMENT

It seems that most of the literature on sustainable development has confused its definition with the conditions for achieving sustainability. The concept of sustainable development is often discussed in association with the report of **The Brundtland Commission** and **World Conservation Strategy.** The report of *The Brundtland Commission* is known as '**Our Common Future',** it was published in 1987. This report defines sustainable development as a development that meets the needs of the present generation without compromising the ability of the future generations to meet their own needs.

World Conservation Strategy (1980) presented sustainable development as a strategy to improve the quality of human life while living within carrying capacity of supporting ecosystem. **K. D. Gangarade (1998)** wrote that the concept of sustainable development as a viable theme in approaching developmental issues is covered by four critical dimensions: economic, human, environment and technological.

3. NEED OF ENVIRONMENTAL CONCERN

The environment encompasses the interaction of all living species, climate, weather and natural resources that affect human survival and economic activity. **Nair (1993)** wrote that man being the architect of his own destiny is obliged to take steps to contain the environmental decline. The problems of pollution are high on the agenda of developed countries, which, with the high growth in industrial and agricultural sectors, contributed greatly to the pollution hazards. In the process, a complement of environmental hazards such as ozone depletion, climate change and physical disruption ensued. Human activities accounted for the decimation of the green cover, which in turn leads to soil degradation, erosion, desertification, and even natural calamities like floods, hurricanes and other disturbances. The loss of biodiversity is one of the most serious aspects of environmental resource depletion as it affects the process of development. The deleterious impact of environmental depletion on development, on the people is very great, the degree of which varies with the ecosystem, community structure and human settlements.

Man must realize that he does not own nature; he is only one of its many off-springs. Nature is not due to man, man is due to nature. Man supposedly the wisest animal on earth should play the role of a trustee of the enormous natural wealth ***(Mishra and Pandit, 1995: 490).***

4. LEADING ENVIRONMENTAL CHALLENGES FOR SUSTAINABLE DEVELOPMENT

4.1. GLOBAL WARMING: - Global warming is the term used to describe a gradual increase in the average temperature of the earth's atmosphere. The fact of rise in global temperature has also been confirmed by the Inter-governmental Panel on Climate Change, (IPCC), set up by the United Nations, in its final report published in August, 1990. This report predicted that unless it is checked, global warming will increase at an average rate of 0.3 degree Celsius per decade, reaching 2.4 degree Celsius over the next century. In terms of its adverse effects, global warming has led to unprecedented rise in the sea level as a result of the melting of ice and the thermal expansion of the oceans. A more serious effect of global warming is on climatic change with its attendant aberrations. The result is drought here, cyclone there and flood elsewhere. With the increasing pace of industrialization, burning of fossil fuels and massive deforestation, all in the name of development, there has been an alarming increase in the emission of certain greenhouse gases, including carbon dioxide, chlorofluorocarbons, methane and nitrous oxide. Global warming would mean shorter cold seasons and larger warm ones. The winter in the northern region will be warmer and its summer longer which will disrupt its agriculture severely. Consequently, extreme weather conditions would be a common phenomenon, and there will be mass extinction of plants as well as animals from the forests. India was the third largest emitter of carbon dioxide in 2009 at 1.65 Gt per year, after China and the United States.

4.2. OZONE DEPLETION: - Huge build-up of gases and chemicals emitted by industrial plants and automobiles, the much touted measures of development has led to depletion of ozone layer which serves as a shield to protect life on the earth from the harmful ultraviolet rays of the sun. It is reported by space scientists that a hole has already developed in the ozone layer above the Antarctica region. According to World Watch Institute's 1992 report, ozone layer in northern hemisphere is thinning out twice as fast as scientists thought just a few years ago. Scientists are agreed that any major depletion of the ozone layer would cause serious harm not only to humans, but to animals, plants,

birds, insects and some sea life also. Skin cancer would increase, as would damage to the eyes of living creatures, including humans. India has been producing and using nine of the 96 Ozone Depleting Substances (ODSs) controlled under the Montreal Protocol.

4.3.TOXIC POLLUTION: - Toxic pollution is another consequence of industrial development. This is produced by the dumping of hazardous and toxic wastes, both solid and liquid, released by industrial plants. Toxic pollution of air and water became a big concern of present world.

4.3.1. Air Pollution: - Industrialization everywhere has brought dirtier air from factories and transportation system, with their tell-tale smoke stocks and exhaust pipes, toxic fumes are emitted into the air. Cities such as Kolkata, Delhi, Seoul and Mexico are experiencing serious problems caused by their increasing numbers of automobiles. In May 2014 the World Health Organization announced New Delhi as the most polluted city in the world. In November 2016, the Great smog of Delhi was an environmental event which saw New Delhi and adjoining areas in a dense blanket of smog, which was the worst in 17 years. The Delhi government tested the odd– even formula for two separate fortnights in 2016. The system designed to reduce pollution allows vehicles to ply on odd and even dates based on the last number of their licenses plates. Even, the Supreme Court of India banned the sale of fireworks in Delhi NCR for the annual festival of Diwali in October, 2017. Central Pollution Control Board in India is executing a nation-wide National Air Quality Monitoring Programme.

4.3.2. Water Pollution: - Development, to date, has tended to turn clean water into dirty water as often as it has turned fresh air into dirty air. It is estimated that more than 30 percent of India's total population has no access to drinking water. A 1992 World Health Organization study reported that out of India's 3,119 towns and cities, just 209 have partial sewage treatment facilities, and only 8 have full wastewater treatment facilities. UN projections predict that by 2030, global demand for freshwater will exceed supply by 40% due to climate change, human action, and population growth. Nowadays India's tech hub, Bengaluru is facing a severe water crisis.

4.4. EROSION OF BIODIVERSITY: - Another leading environmental challenge is genetic erosion or loss o biodiversity. This is caused in the first instance by the development projects such as big dams, fertilizer plants and power projects which lead to large scale destruction of natural habitat for plants and animals. Deforestation and degradation of land a consequence of the mad rush for development is another source of genetic extinction. Forests are vanishing at a rate of some 17 million hectares per year.

5. LIMITATIONS OF THE SUSTAINABLE DEVELOPMENT MODEL IN DEALING WITH THE ENVIRONMENTAL CHALLENGES

M. Shamsul Haque (2000) wrote that despite such a clear focus of the sustainable development model on the environment-development relationship, there are some drawbacks of the model that need to be critically examined and seriously considered if environmental problems are to be addressed more comprehensively. They are following:-

5.1. Despite its environmental concern, the sustainable development model is constrained by its continuity with the agenda for economic growth that often causes harm to the environment itself. Although the Brundtland Report (Our Common Future) advocates development based on environmental sustainability, it continues emphasize "the possibility for a new era of economic growth" (WCED, 1987, 1).

5.2. Another drawback of the sustainable development model is its utilitarian tendency to view development in terms of the level of consumption such a belief of this model in consumption – centered development is evident in its central concern that the excessive consumption of resources by the current generation may threaten similar consumption by future generations.

5.3. Although the proponents of sustainable development are deeply concerned with intergenerational equity, they do not pay adequate attention to the existing structures of interclass and international inequalities adversely affecting the environment.

5.4. The sustainable development model does not adequately address the implications of internal and international power structures for the adoption and implementation of agreements, conventions, laws and regulations concerning environmental protection.

5.5. **Possible solutions to overcome these limitations: -** In order to build an adequate model of sustainable development, it is essential to overcome the parochial concern of economic growth and emphasize a more comprehensive understanding of development that takes into account the environmental costs of such economic growth; to reexamine the assumptions of modernity and appreciate the environment- friendly indigenous cultures in various regions and to focus on the detrimental impacts of consumer culture on environment and undertake required policies to rectify such a trend. It is also necessary to introduce basic reforms in unequal economic structures for enhancing interclass and international inequalities that adversely affect environment, to adopt effective legal measures related to environmental protection.

6. CONCLUSION

In India, various ecology movements such as **Chipko Movement** and **Save Narmada Movement** are well known efforts to aware people and government towards the environmental crisis. It is also stated in '**The Constitution of India'** that "It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living characters" **(The Constitution of India, Part IV, Article 51).** All the Indian citizens should participate for achieving sustainable development. The protection and conservation of physical environment alone would not solve the problem of ecological imbalance. An integrated physical, social, political, cultural and global policy is need for ecological restoration and sustainable development.

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