

January 2010

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Shalini Singh

Cambridge Institute of Technology, Jharkhand, India, shalini_singh02@yahoo.com

Amit Kumar

Cambridge Institute of Technology, Jharkhand, India, amitkumar_shaurya@yahoo.com

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Recommended Citation

Singh, Shalini and Kumar, Amit (2010) "Environment And Sustainable Development," *Interscience Management Review*. Vol. 3 : Iss. 1 , Article 5.

Available at: <https://www.interscience.in/imr/vol3/iss1/5>

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Environment And Sustainable Development

Shalini Singh & Amit Kumar

Department of M.B.A, Cambridge Institute of Technology, Jharkhand, India
E-mail : shalini_singh02@yahoo.com, amitkumar_shaurya@yahoo.com

Abstract - With the dawn of the 21st century, we are confronted with two conflicting scenarios for the future of man kind. On the one hand, there are possibilities of a bright future with press button living, space shuttles, information technology, genetic engineering and such other advances in science and technology. On the other hand, a grim scenario is looming large with burgeoning population starved of resources and choked by pollution. Faced with such crucial situation wherein we stand at the crossroads in choosing between environment and development we feel the need of 'Sustainable Development'. The concept of sustainable development means that the rate of consumption or use of natural resources should approximate the rate at which these resources can be substituted or replaced. It further requires that a nation or society is able to satisfy its requirements- social, economic or others without jeopardising the interest of future generations. The paper broadly tries to outline the basic concept of sustainable development, the world-wide activities initiated to deal with environmental problems and the major strategies that can be adopted by nations for sustainable development.

Key words - Sustainable Development, Environment, Renewable sources, Ecology.

I. INTRODUCTION

In 1987 the world commission on environment and development to the United Nations (UNCED) was established. The Commission published famous Burndtland report which defined sustainable development as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

This has been interpreted as meaning that each generation must rely on the use of renewable resources and should reuse and recycle waste materials before considering taking new resources from the earth which cannot be replaced. In this way we must adopt a way of life which passes on the earth's resources undiminished to the next generation[1].

The idea of sustainable development contains within it two key concepts:

- The concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and
- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs

The key objective of sustainability includes:

Reviving economic growth so that it has a reduced impact on the environment by using

- a) Less materials and energy
- b) Ensuring a sustainable level of population
- c) Conserving and enhancing our natural resource base
- d) Reorienting technology and managing risk.
- e) Merging ecological and economic considerations in decision making.

We need to plan for 'development without destruction' and manage our environment based on the ethical principle of socio-economic equality and ecological sustainability. Environmental management and sustainable development programs should go hand in hand. The key to growing sustainable is not to produce less but to produce differently in a way which is environmentally friendly and compatible i.e. by embracing the philosophy of 'Cleaner Production'; not to consume less but to consume judiciously and efficiently within the regenerative capacity of the Earth ecosystems and with minimum waste generation.

II. THE MAJOR ENVIRONMENTAL PROBLEMS

- A. The local concerns are air, water and noise pollution, declining groundwater table and increasing shortage of potable water, chemical spills and contaminated sites (land), acid sulphate soil, etc.

- B. The regional concerns are rural decline, declining rain and depleting natural water resources, increasing soil salinity, increasing natural and man-made disasters, disposal of chemical and radioactive wastes, ocean oil-spills and marine pollution, degrading coastal ecosystems, acid rains, etc.
- C. The global environmental concerns are threat of global warming and climate change, stratospheric ozone depletion, deforestation and biodiversity erosion, overpopulation and resource depletion especially in poor developing countries.

III. VULNERABILITY OF THE HUMAN SOCIETY

NDMA (N-nitrosodimethylamine), a principal ingredient in rocket fuel and MTBE (methyl tertiary butyl ether), a gasoline additive were discovered in surface and ground water resources; thousands of kilometres away from where they were used. DDT and PCBs were found on poles, thousands of kilometres away from where they were produced; radioactive isotopes strontium-90 (Sr^{90}) and cesium-137 (Cs^{137}) which are routine emissions from all nuclear power plants were found in the bone marrow of children in India far away from the sources of their emissions. All these chemical and radioactive contaminants followed the air routes to reach those distant destinations. From the atmosphere they precipitated down to Earth and entered into the human ecosystem.

IV. WORLD-WIDE ACTIVITIES ON SUSTAINABLE DEVELOPMENT

A. *Stockholm conference (1972)*

The first ever world conference on human environment was held in the Swedish capital Stockholm in June 1972 where representatives including the states participated and pledged to save the environment. This may be regarded as the 1st Earth summit. Stockholm conference (1972) was landmark towards the development of global consensus on the need of environmental protection leading to sustainable development. The world leaders declared –Man is creature and moulder of his environment which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. Both aspects of man’s environment: Natural and Man-made are essential to his well-being and to the enjoyment of basic human rights.

B. *Brundtland Commission Report (1987)*

The Brundtland Commission Report on sustainable development redefined the concept of development which should encompass the following components:

- a) A system of stable socio-economic and ecological development which should improve the total quality of all life.
- b) A system of socio-economic development which can provide good quality of life to all people.

C. *UN Conference on Environment and development (1992)*

The UN Conference on Environment and development was held at Rio de Janeiro, Brazil in 1992. The Agenda 21 (agenda for 21st century) was adopted at UNCED. It was the blueprint for global sustainable development. In the opening lines of agenda 21, the nations of the world pronounced that – ‘Humanity stands at defining moment in history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, ill health and illiteracy, and the continuing deterioration of natural ecosystems on which we depend for our well-being. However, integration of environment and development concerns and greater attention to them will lead to the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer more prosperous future. No nation can achieve this on its own, but together we can- in a global partnership for sustainable development.

D. *3rd World summit (2002)*

The 3rd world summit on sustainable development (WSSD) was held in Johannesburg, South Africa in 2002. In the 10 years between Rio (1992) and Johannesburg (2002), critical environmental problems such as greenhouse gas emission (global warming), loss of old growth and primary forests (biodiversity erosion), ocean plunder and waste of resources (piling waste) , lurched from bad to worse. On the socio-economic front, the rich and the powerful got richer and more powerful while the poor became poorer and weaker [2]. The concept of ‘Sustainable development’ and the much lauded movement sustainability remained on paper.

These are some of the disheartening episodes of the efforts made towards achieving global human sustainability:

- i. Two billion people currently do not have access to modern energy services.
- ii. About 1.1 billion people do not have access to safe drinking water. It is predicted that water supply will be the major constraint on sustainable development in the 21st century.
- iii. About 2.4 billion people lack adequate and improved sanitation.
- iv. More than 1.2 billion people still live on less than 1 dollar a day.

- v. More than 3 million people die of air pollution and the same number dies from diseases caused by unsafe and polluted water. The target for health for all by the year 2000 never became a reality.
- vi. New highly toxic chemicals e.g. NDMA (N-nitrosodimethylamine), a principal ingredient in rocket fuel and MTBE (methyl tertiary butyl ether), a gasoline additive were discovered in surface and ground water resources.
- vii. Half of the tropical rainforests and mangroves have already been lost.
- viii. About 75% of the marine fisheries have been fished to capacity.
- ix. In September 2000, the ozone hole over Antarctica covered more than 28 million square kilometres.
- x. Some 75 billion tonnes of 'top soil' are eroding every year. Around 2 billion hectares of soil- 15% of Earth's land is now classed as degraded.

V. PEOPLE'S MANDATE ON SUSTAINABLE DEVELOPMENT

Market and opinion International (MORI) polled in 30 countries containing two third's of world population and found that 91% people in Greece ; above 60% in the U.S, Germany, Russia, France, Italy, Spain, Japan; 69% people in U.K agreed that environmental degradation especially waste and pollution is affecting their daily life. Opinion poll by Roper worldwide found that 39% people in these 30 countries were of the view that environmental protection and sustainable development was of paramount importance today. The percentage of people expressing this view was significantly higher in India, Argentina, the Philippines and Germany. Gallup polls made in the U.S found that 57% of the Americans were more concerned about pollution of rivers, lakes and streams while 29% cited fears about global warming. In another poll 65% Americans saw erosion of biodiversity as most serious problem facing the humanity. The MORI millennium poll wanted to know from people which section of the society was mainly responsible for the 6 in every 10 asserted that the 'corporate sectors' were mainly damaging the environment to make profit even at the cost of environment and hence protection of environment was their moral responsibility.

VI. THE STRATEGIES FOR SUSTAINABLE DEVELOPMENT

Sustainable development will deliver social, economic and ecological benefits for it will conserve resources, reduce waste, prevent loss of energy and protect human health.

The new paradigm of development is not the game of economics alone. All issues- economic, ecological, social (health), cultural (educational), legal (legislative), political and technology have to be merged into a collective decision making for sustainable development. Earlier economy was at the centre of decision making. This assumed that all environmental problems could be solved if economy was sound. This has now become an obsolete theory. Now ecology has to be at the centre. We have to integrate ecological thinking into social and economic planning. The developmental activities have to be "economically viable", "ecologically compatible", "socially equitable", "culturally acceptable", and "politically justifiable". Then only it can be environmentally sustainable. This will require giving up the culture of consumerism, producing less consumers that the earth can sustain and also achieving equity in resource use and consumption across the world. Over-consumerism and too much of prosperity in one part of the world or over population and poverty in other part would thwart the spirit of sustainable development.

1. Development of Environmental Technologies

Science and technology came as a mixed blessing for mankind. When used judiciously and legitimately for human development science saved life and property but when misused it spelt disaster. Technology practically transformed the 'traditional human society' which was more vulnerable to the vagaries of nature, more dependent for survival on nature, less adapted to survive against odds, to modern human society, which is less vulnerable to the vagaries of nature, more fit to survive in difficult situation, less dependent on nature for survival and more competent to manage their affairs. Technological developments in the past decades and especially after the 1980s have delivered spectacular improvements in the environmental quality, cleaner air and water, low emission automobiles, less toxic and hazardous wastes, water and energy efficient homes and appliances, etc.

Some of the remarkable technological achievements are:

- i. More fuel efficient, quieter and less polluting automobiles driven on environmentally benign auto-fuels like compressed natural gas (CNG) liquefied petroleum gas (LPG) and ethanol.
- ii. More energy efficient electrical appliances and instruments.
- iii. The 'fuel-gas desulfurization technology' (FGDT) in coal power plants have led to significant reduction in sulphur dioxide.
- iv. The 'coal-gasification technology' (CGT) in coal power plants has led to significant reduction in the greenhouse gas dioxide (CO₂).

- v. The 'solar photo voltaic cell technology' (SPVCT) has brought a new era in economic lighting and devices.
- vi. Partial plugging of the ozone hole in the stratosphere has been achieved by developing lesser evil substitute hydrochlorofluorocarbon (HCFC) which has 30% less ODP than CFC.

2. *Role of Telecommunication and Information Technology*

Telecommuting is a new concept of working from home using PCs and electronic linkages. It reduces the need to drive to work preventing emissions and congestion in cities, the need to heat or cool and light big offices which again saves energy and cuts emissions. More than half of the managers of AT & T Telecom Company in the U.S telecommute one day a week, reducing 80,000 tons of carbon dioxide annually due to reduced travel and transport. (UNEP Report, 2002).

Future Technological Development for Sustainable development

- i. Commercialization of clear hydrogen fuel for automobiles and solar, wind, geothermal and oceanic energy for utility power generation.
- ii. Making the conventional energy sources more clean and green and thus more sustainable.
- iii. More efficient energy use and conservation homes, institutions and industries.
- iv. Cost effective technology for water and wastewater.
- v. More recycling of all municipal and industrial wastes for their safe disposal and conversion into valuable resources.
- vi. More dematerialization technology to increase the efficiency of natural resource use and reduce their waste.

3. *Societal Environmental responsibility*

Governments in developing nations nurse serious misgivings that the developed nations having followed the culture of over consumerism for several decades now wants to deprive the developing nations from their legitimate right to develop and consume in the name of environmental protection and sustainable development. In 1998, UNEP's Division of Technology, Industry and Economics (DTIE) launched a sustainable consumption programme and tried to dispel the misgiving about reducing consumption worldwide. It emphasized – sustainable consumption is not about consuming less but it is about consuming differently, consuming efficiently, consuming judiciously and having an improved quality of life for all both in the developed and developing

countries. It also means sharing between the rich and the poor.

4. *Awareness for green consumerism in society*

Global consumer opinion seems heavily weighted towards a growing interest in what lies behind today's product and services that they buy. Apart from price and quality, they want to know how, where and who has produced the product. They want to know its chemical composition which can have an impact on health. This increasing awareness about environment and health in human society is a sign of hope for a sustainable future.

5. *Population control- A necessary condition for Sustainability*

There is a nexus between 'Poverty and Pollution', between 'population and poverty' and between 'population and pollution':-

Nearly 930 millions of people (consumers) are being added every year to the earth demanding more of all resources, more forest to produce food and fuel, and more land to live. Environmental impact of use of resources and sustainability is determined by the following relationship:-

$$I=PRT$$

Where, Environmental impact of resource use (I) is determined by Population Size (P) using the resource, multiplied by the affluence (A) of the consuming population and technology (T) by which the resources are used. This means bigger the population size greater will be the adverse impact on the environment and more unsustainability. The goals of sustainable development cannot be achieved unless we have a new world order with equity at all levels- social, economic, political and cultural.

6. *Putting the onus on Industry and corporate Sector*

Opinion polls made on the eve of Johannesburg Summit (2002) clearly show that people worldwide want the companies in both private and public sectors to bear the responsibility of environmental degradation and act with greater responsibility towards its repair and restoration. The behaviour of big companies and the corporate sectors and the need to make them more responsible and accountable has captured public attention and interest in all discussions relating to environmental protection and Sustainable Development. Transnational Corporations (TNCs) should be made liable for economic compensation for the harmful effects of the operation on the environment, safety of workers and ill effects on the health of workers and the residents in the area.

VII. CONCLUSION

It is impossible to separate economic development issues from environmental issues. Sustainability in human society with good quality of life for all can be achieved in two ways:

- i. By persuading the people to behave ethically towards environment, reduce consumption and have a simpler life style.
- ii. By embracing the philosophy of sustainable development with appropriate technologies that allow people to enjoy the same good quality of life with high standard of living but at a significantly lower 'environmental cost.'

Given the difficulty of changing people the second option appears more pragmatic. Mankind will perish if the protection of the environment does not become an integral part of all technological development, planning and management. Make economic development programs less dependent upon the 'fossil fuels' and more dependent on renewable energy sources is the need of the hour.

VIII. ACKNOWLEDGMENT

The authors of the article would like to thank Dr.S.P Singh, Director, Department of Environmental Management for his continuous guidance and support in preparing the article. Also, sincere thanks to our son for his co-operation and support.

REFERENCES

- [1] N.K Uberoi, "Environmental Mangement", Excel Books, New Delhi, 2007,pp. 2-3.
- [2] Shah, Anup. "Sustainable Development Introduction." *Global Issues*. 18 Nov.2009.Web.16Nov.2011. <<http://www.globalissues.org/article/408/sustainable-development-introduction>.
- [3] Ruhl, J. B., "Sustainable Development: A Five-Dimensional Algorithm for Environmental Law", (March 26, 2009). *Stanford Environmental Law Journal*, Vol. 18, 1999.
- [4] V.P Agrawal and S.V Rana,"Environment and Natural Resources", Jaagmader, New Delhi, 1996.

