

Sustainable Development in the Context of Energy Law: A Paradigm

Dr. Harpreet Kaur

B.A., LL.B, LL.M (Gold Medalist), Ph.D (NET-JRF), Assistant Professor, Khalsa College of Law, Amritsar, Punjab

Our biggest challenge this century is to take an idea that seems abstract-sustainable development-and turn it into a reality for all the world peoples.¹

*Kofi Annan
(Former UN Secretary General)*

INTRODUCTION

Energy plays a key role in the process of economic growth of a nation. The Industrial development of any country is dependent on the organized development of its power resources. An energy resource is a natural resource from which useful work can be obtained. Energy resources are broadly classified as primary and secondary. Fossil fuels, nuclear energy, hydro energy, solar energy, wind energy, tidal energy is called as primary energy. These resources are further classified in renewable and non-renewable resources. Renewable resources are those which are not exhaustible and which can provide a continuous supply such as wood, solar and wind energy, geothermal energy. Non renewable resources are finite and exhaustible such as fossil fuels and nuclear fuels.²Energy law concerns the management of energy resources. It demands that a scholar in the area engage with other disciplines to some degree, such as politics, economics, geography, environmental sciences and engineering. Energy law has now come to the fore. There is a realization in the twenty-first century of the fundamental role that the energy sector plays in the economy of a country. It is an important sector for employment, future economic development and the personal health of a nation's citizens. In particular, it has been pushed high up the political agenda with the advent of climate change and policies concerning energy security.³ One should know about the cause effect relationship in order to understand functional approach of energy resources and its devastating effects on environment.

Cause-Effect Relationship of Energy Resources

Climate change is one of the primary concerns for humanity in the 21st century. It may affect health through a range of pathways, for example as a result of increased frequency and intensity of heat waves, reduction in cold related deaths, increased floods and droughts, changes in the distribution of vector-borne diseases and effects on the risk of disasters and malnutrition. The overall balance of effects on health is likely to be negative and populations in low income countries are likely to be particularly vulnerable to the adverse effects. The experience of the 2003 heat wave in Europe showed that high-income countries may also be adversely affected. The potentially most important environmental problem relating to energy is global climate change (global warming or the greenhouse effect). The increasing concentration of greenhouse gases in the atmosphere is acting to trap heat radiated from Earth's surface and is raising the surface temperature of Earth. Industry contributes directly and indirectly (through electricity consumption) about 37% of the global greenhouse gas

¹ Dr. Mithilesh Narayan Bhatt, "Industrial Disaster, Polluting environment And jeoparding Human Rights: A Call for Coporate Environment Responsibility", in: Dr. Rajindera Dhar Dubey (ed.), (AN INTRODUCTION TO ENVIRONMENT RIGHTS 232 (1990)

² DR. VIJAY KUMAR TIWARI, A TEXTBOOK OF ENVIRONMENTAL STUDIES 111-112.

³ *What Is Energy Law?.*,www.springer.com/cda/content/document/cda.../9783319141909-c1.pdf?SGWID... (last updated Feb, 27, 2017).

emissions, of which over 80% is from energy use. There is ample scope to minimize emission of greenhouse gases if efficient utilization of renewable energy sources in actual energy meeting route is promoted.⁴

Water pollution is one of the major problems facing humanity. Industrialization, urbanization, increase in human population are responsible for water pollution. Heat from power plants, industries automobiles and hot summers which raises the temperature of water to a harmful level is called thermal pollution and has effect on the environment. The thermal pollution speeds up biodegradation of organic matter, which results into ecological imbalance. Waste generated from atomic reactors contain different kind of radioactive isotopes are very harmful for the plants and animals living in water. Major sources of air pollution are fuels, coal, petroleum and industries. Burning of fossil fuels produces oxides of carbon, nitrogen and sulphur. Air pollution adversely affects human beings and environment. The extent of air pollution depends heavily on how weather disposes of the pollutants.⁵

Biomass creates harmful emissions like carbon dioxide and sulfur when it is burned, but causes less pollution than fossil fuels. Even burning wood in a fireplace or stove can create pollutants like carbon monoxide. Burning municipal solid waste, or garbage that would otherwise go into a landfill, can also cause potentially dangerous emissions. Coal mining has the potential to harm air, water and land quality if it is not done with proper care. Acidic water may drain from abandoned mines underground, and the burning of coal causes the emission of harmful materials including carbon dioxide, sulfur dioxide and mercury. While hydropower does not cause water or air pollution, it does have an environmental impact. Hydroelectric power plants may harm fish populations, change water temperature and flow (disturbing plants and animals) and force the relocation of people and animals that live near the dam site. When burned, petroleum products emit carbon dioxide, carbon monoxide and other air toxins, all of which have a negative effect on the environment. Solar energy produces no air or water pollution or greenhouse gases. However, it has some indirect impacts on the environment.⁶ Generally Speaking, all of the solar Technologies, direct and secondary, offer the hope of lessening our concern over the eventual warming of the atmosphere.⁷

Nuclear power plants use large quantities of water for steam production and for cooling, affecting fish and other aquatic life. Likewise, heavy metals and salts can build up in the water used in the nuclear power plant systems. When water is discharged from the power plant, these pollutants can negatively affect water quality and aquatic life. Wind is a clean energy source. It produces no air or water pollution because no fuel is burned to generate electricity. The most serious environmental impact from wind energy may be its effect on birds and bat mortality.⁸ A modern “environmental Problem” has been discovered with the NASA machines in Ohio. The turning metal blades interfered with TV. This can be avoided by going to cable TV and locating the antenna away from the turbine.⁹

Energy Law and Sustainable Development

Development of the countries and eradication of poverty must be balanced against conservation of environment. The concept of sustainable development was mentioned in the Brundtland Report, 1987 which stated: *Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.* It is a principle that balances development and ecology.¹⁰ Human rights and environmental law have traditionally been envisaged as two distinct, independent spheres of rights. Towards the last quarter of 20th century, however, the protection arose that the cause of protection of the environment could be promoted by setting it in the framework of human rights, which had by then been firmly established as a matter of international law and practice. Because it deals with two approaches: one is environment

⁴ N.L. Panwar a, S.C. Kaushik , Surendra Kothari, *Role of renewable energy sources in environmental protection: A review.*, <http://www.beren.sakarya.edu.tr/sites/beren.sakarya.edu.tr/file/1380752545-07-RenewEn.pdf.pdf> (last Feb, 27, 2017).

⁵ P.S. JASWAL, *ENVIRONMENTAL LAW 177-178, 206* (2006).

⁶ *Environmental Impact by Source*, <http://energy4me.org/all-about-energy/sustainability/environmental-impact-by-source/> (Last accessed on 27 February 2017).

⁷ *ENCYCLOPEDIA ON ENVIRONMENT PROTECTION AND POLLUTION*, 5th edition, 2415, (2009).

⁸ *Environmental Impact by Source*, <http://energy4me.org/all-about-energy/sustainability/environmental-impact-by-source/> (Last accessed on 27February 2017).

⁹ *ENCYCLOPEDIA ON ENVIRONMENT PROTECTION AND POLLUTION LAWS*, 2415.

¹⁰ Dr Ranjit Sil, “Vulnerability of the existence of the water bodies in the Rising Crazes of Urbanization; A Legal Probe”, Dr Rathin Bandopadhyay, Dr Rajendra Dhar Dubey (ed.), *AN INTRODUCTION TO ENVIRONMENTAL RIGHTS*, 268 (2010).

and another is Human Rights.¹¹ There is need to have glance over international efforts for sustainable development through energy resources. International Initiatives on account of sustainable development are as follows:

1. Declaration of the United Nations Conference on the Human Environment, (1972)

Stockholm Conference had following objectives to achieve in the form of Principles:

- Careful Planning: The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems must be safeguarded for the benefit of present and future generations through careful planning or management, as an appropriate.¹²
- The Capacity of the earth of provides vital renewable resources must be maintained and, whenever practicable, restored or improved.¹³

2. Earth Summit (1989)

United Nations Conference on Environment and Development (UNCED) aimed to build upon Brundtland Report. It was the largest inter-governmental meeting ever held. The Earth summit based on eco-efficiency guiding principle¹⁴ for business and government. Eco efficiency principle is based on the concept of to introduce more goods and services while using fewer resources and producing less waste and pollution.

Declaration on Environment and Development (1992)

Rio Declaration is an International agreement which respects the interests of all and protects the integrity of the global environmental and developmental system. It recognizes the integral and interdependent nature of Earth as our home. Principles related to sustainable development are as mentioned below.

- *Sustainable Development*: This right is based on the concept that sensible use of energy sources in such a manner to save for future generation.¹⁵
- *Environment Protection Part of Development Process*: Environment Protection is part of sustainable Development and not a issue to be discussed in isolation.¹⁶
- *Need to change present Practices*: sustainable development means higher quality of life for people which conveys the message to people not to use unsustainable patterns of production along with promotion of population policies.¹⁷

3. Second United Nations Conference on Human Settlements(Habitat-II) 1996

On the recommendation of the Stockholm conference on human environment 1972 the second united nations conference on human settlement referred to city summit or habitat II adopted the final documents referred to 'Habitat Agenda'¹⁸ which was address to people at tall levels and has become guiding source for the achievement of sustainable development from grass root level to upwords.¹⁹

4. Kyoto Protocol to The United Nations Framework Convention on Climate Change (1997)

Article 2 of Protocol says that each party is under obligation to fulfill the aims in order to maintain sustainable development-

- (i) Enhancement of energy efficiency machines ans services which will contribute to increase national economy.
- (ii) Protection for sinkers and reservoirs of green house gases are monitored by Motreal Protocol considering the appropriate International Agreement for the protection and promotion of sustainable forest management practices.
- (iii) Promotion of sustainable forms of agriculture while considering the climate change.

¹¹ PROF. SAHIL KSHARMA, PROTECTIONAND PROMOTION OF HUMAN RIGHTS IN INDIA 230 (2010).

¹² Declaration of the United Nations Conference on the Human Environment, 1972, Principle 2.

¹³ *Ibid.*, Principle 3.

¹⁴ Earth Summit, www.un.org (Last accessed on 4 March 2017).

¹⁵ The Rio Declaration on Environment and Development (1992), Principle 3.

¹⁶ *Ibid.*, Principle 4.

¹⁷ *Ibid.*, Principle 8.

¹⁸ Eco efficiency has been proposed as one of the main tools to promote a trans formation from unsustainable development to sustainable development

¹⁹ Dr Ranjit Sil, "Vulnerability of the existence of the water bodies in the Rising Crazes of Urbanization; A Legal Probe", Dr Rathin Bandopadhyay, Dr Rajendra Dhar Dubey (ed.), *AN INTRODUCTION TO ENVIRONMENTAL RIGHTS*, 256 (2010).

- (iv) Research on the promotion of renewable forms of energy for carbon dioxide confinement technologies and introduce newly environmentally sound technologies.
- (v) Progressive reduction in tax and duty exemptions and subsidies to greenhouse gas emitting sectors that fulfill the objectives of convention.
- (vi) Encourage the appropriate reforms aiming to promote policies and measures to limit emission of greenhouse gases.
- (vii) Reduce emission of greenhouse gases which is not controlled by Montreal Protocol in transport sector.
- (viii) Reduction of methane emission through use in waste management.²⁰

5. Johannesburg Declaration on Sustainable Development, (2002)

Sustainable Development has long term perspective and has participation in formulation decision making and implementation at all levels.²¹

Small and big companies has duty to contribute in maintaining sustainable development of communities and societies.²²

Provide support to increase income generating employment opportunities while considering declaration of fundamental principles and rights at work. It can be rephrased that income generating employment taking into account the directive principles and fundamental rights.²³

In Private sector corporation to fix corporate accountability which should within transport and stable environment.²⁴

State has undertaken to strength and improves the effective implementation of agenda 21, the Millenium Development Goals and the plan of enforcement of the summit.²⁵

Other Organization`s Initiatives for Environment Protection

The Coalition for Environmentally Responsible Economies (CERES) (International Body)

The CERES Coalition for Environmentally Responsible Economies²⁶ is a non-profit organization based in the US which comprises investors and environmental, religious and public interest groups. The coalition's purpose is to promote investment policies that are environmentally, socially and financially sound.²⁷It is also called as The valdlez principles or The Ceres Principles. There are 10 Ceres Principles; out of that few relating to energy law are as given below:

- *Sustainable use of natural resources*: there is need for sustainable use of renewable resources which includes water, soil and forest. Even we can conserve non- renewable natural resources through careful planning to use these resources efficiently.²⁸
- *Wise use of Energy*: sustainable use of energy sources can be done through environmentally safe and sustainable energy sources to meet our needs. We can maximize the energy efficient products which can produce and sell.²⁹
- *Damage compensation*: it would be the responsibility of wrong doer to fully restore the environment and to compensate those people who are adversely affected.³⁰

²⁰ Kyoto Protocol, Article 2 (a) (1) - (Viii)

²¹ Johannesburg Declaration on Sustainable Development, (2002), Principle :26.

²² *Ibid.*, Principle: 27.

²³ Johannesburg Declaration on Sustainable Development, (2002),Principle :28

²⁴ *Ibid.*, Principle: 29

²⁵ *Ibid.*,Principle:30.

²⁶ By adopting these principles, we publicly affirm our belief that corporations and their shareholders have a direct responsibility for the environment. We believe that corporations must conduct their business as responsible stewards of the environment and seek profits only in a manner that leaves the Earth healthy and safe. We believe that corporations must not compromise the ability of future generations to sustain their needs.

²⁷The Coalition for Environmentally Responsible Economies (CERES), https://www.iisd.org/business/tools/principles_ceres.aspx (Last accessed on 27 February 2017).

²⁸ The Coalition for Environmentally Responsible Economies (CERES), Principle 2.

²⁹ *Ibid.*, Principle: 4.

³⁰ *Ibid.*, Principle: 7.

Charter on Corporate Responsibility for Environment Protection (Crep) (National Body)

Crep was launched with the purpose to go beyond the Compliance of regulatory norms for minimization, in-plant process control and adoption of clean technologies. The charter has set targets concerning conservation of water, energy, recovery of chemicals, reduction in pollution, elimination of toxic pollutants, process and management of residues that are required to be disposed off in an environmentally sound manner. The charter enlists the action points for pollution control for various categories of highly polluting industries. This is the very purpose of this charter. With this in view, a series of industry-specific interaction meetings were organized by the ministry of environment and forest to formulate the charter on corporate responsibility for environmental protection (CREP), including cement, copper, dyes and fertilizer, iron and steel, oil refineries, pesticides, petrochemicals pharmaceuticals, pulp and sugar, tannery, thermal power plants and zinc industry.³¹

Conservation of Natural resources

Environment Protection means limiting the impairment of Environment and it includes conservation of resources. It has three main objectives: (1) To prevent damage and discomfort, (2) To improve Productivity and pleasure and, (3) To Maintain balance of the ecosystem. Resource management should be less energy-intensive, suitable to local ecology and needs of the people, less cost –intensive and more viable in terms of economy, ecology and culture.³² In meanwhile the World Bank has developed a new theory called as “new Environmentalism Theory” which aims at finding “win-win’ areas where both environment and development could go together. Indeed this theory intends to replace the perception that both could not go together.³³ The Vellore case is noteworthy in the sense that it laid one of the foundation for interpreting the internationally accepted principles of sustainable development. The court summed up the principle as inter-generational Equity, Use and Conservation of Natural Resources, Environmental Protection, the Precautionary Principle, Polluter Pays Principle, Obligation to assist and cooperate.³⁴ According to the Apex court polluter pays principle are salient feature of sustainable development. Article 21 article 48 A and 51 A (g) which makes it obligatory on the part of the state as well as the citizens to protect the environment and the corresponding legislation namely the water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 the Court opined that in the view of above mentioned constitutional provisions Polluter Pays Principle and Precautionary principle is Part of Environment Law of the Country.³⁵ Sustainable development has been included within the meaning of right to life under Article 21. the adherence of sustainable development principle is a sine qua non for the maintenance of the symbolic balance between the rights to environment and development. Right to environment is a fundamental right. On the other hand, right to development is also one. Here the right to “sustainable development” is to be treated as an integral part of life” under Article 21.³⁶

Judicial Activism

- *Polluter Pays Principle*: “If anyone intentionally spoils the water of another ... let him not only pay damages, but purify the stream or cistern which contains the water...” Polluter Pays Principle has become a very popular concept lately. ‘If you make a mess, it’s your duty to clean it up’ - this is the fundamental basis of this slogan. It should be mentioned that in environment law, the ‘polluter pays principle’ does not allude to “fault.” Instead, it supports a remedial methodology which is concerned with repairing natural harm. It’s a rule in international environmental law where the polluting party pays for the harm or damage done to the natural environment. In Vellore Citizen’s Welfare Forum v. Union of India, the Supreme Court has declared that the polluter pays principle is an essential feature of the sustainable development.
- *The Precautionary Principle*: The following three concepts for the precautionary principle: Environmental measures must anticipate, prevent and attack the causes of environmental degradation, lack of scientific certainty should not be used as a reason for postponing measures, onus of proof is on the actor to show that his action is benign.³⁷

³¹ Dr Jyoti Mozika, “Corporate Environmental Responsibility in India: Need for a Commitment Oriented Legal approach”, In; Dr Rajendra Dhar Dubey (ed.). *AN INTRODUCTION TO ENVIRONMENTAL RIGHTS 183(2010)*.

³² Dr. VIJAY KUMAR TIWARI, *A TEXTBOOK OF ENVIRONMENTAL STUDIES 19-20 (2011)*

³³ Dr. SUKANTA K NANDA, *ENVIRONMENTAL LAW 400-401 (2015)*.

³⁴ ARJYA B. MAJUMDAR DEBOSMITA NANDY AND SWAYAMBHU MUKHERJEE, *ENVIRONMENT AND WILDLIFE LAWS IN INDIA 16 (2013)*.

³⁵ PROF. SATISH SHASTRI, *ENVIRONMENTAL LAW, 402 (2005)*.

³⁶ N.D. Jayal V. Union of India, (2004) 9 SCC 362, AIR (2004) SC 867.

³⁷ Vellore Citizen’s Welfare Forum v. Union of India, AIR (1996) SCC 212.

- *The Public Trust Doctrine*: The Public Trust Doctrine primarily rests on the principle that certain resources like air, water, sea and the forests have such a great importance to people as a whole that it would be wholly unjustified to make them a subject of private ownership.³⁸
- *Doctrine of Sustainable Development*: The court for the first time dealt with the issue relating to the environment and development; and held that, it is always to be remembered that these are the permanent assets of mankind and are not intended to be exhausted in one generation.³⁹

Some Suggestions for Conservation of Energy

1. Implementation of features of Conservation Act 2001, that is as given below:
 - Minimum energy consumption standards for appliances and labeling of energy use
 - Prohibit manufacture, sale and import of equipment and appliances not conforming to standards
 - Identification of energy intensive industries and other establishments to be notified as Designated Consumers (DC)
 - Energy audits by accredited energy auditors and implementing techno-economic viable recommendations
 - Amending of energy conservation building codes to suit local conditions
 - Establishment of Central and State Energy Conservation Fund
 - Energy-use inspection of Designated Consumers (DCs)
 - Enforcement of energy consumption norms.⁴⁰
2. The purpose of National Renewable Energy Act, 2015 is to promote the production of energy through the use of renewable energy sources in accordance with climate, environment and macroeconomic considerations in order to reduce dependence on fossil fuels, ensure security of supply and reduce emissions of CO₂ and other greenhouse gases. This Act shall in particular contribute to ensuring fulfillment of national and international objectives on increasing the proportion of energy produced through the use of renewable energy sources.⁴¹
3. For prevention and control of pollution and environmental hazards in energy generation and use for encouraging popularization of environmentally benign energy system.
4. Choice of practicable clean technologies for energy production and processes including waste utilization, treatment and disposal of solid waste, effluents and emissions,
5. Location of energy generation projects based on environmental considerations including pollution, displacement of people and loss of biodiversity.
6. Incentive and punitive measures to prevent abuse and promote the use of energy efficient devices in the production and distribution system.
7. Setting up of biogas plants based on cow-dung, human excreta and vegetables wastes.⁴²
8. Solar energy mechanism is being used for concentrated lighting in buildings. Wind Energy India is surpassed only by Germany as one of the world's fastest growing markets for wind energy. The ten machines near Okha in the province of Gujarat were some of the first wind turbines installed in India. It is one of the most environment friendly, clean and safe energy resources.
 - It has the lowest gestation period as compared to conventional energy.
 - Equipment erection and commissioning involve only a few months.
 - There is no fuel consumption, hence low operating costs.
 - Maintenance costs are low.
 - The capital cost is comparable with conventional power plants. For a wind farm, the capital cost ranges between 4.5 crores to 5.5 crores, depending on the site and the wind electric generator (WEG) selected for installation.
9. The most successful forms of biomass are sugar cane biogases in agriculture, pulp and paper residues in forestry and manure in livestock residues. It is argued that biomass can directly substitute fossil fuels, as more effective in

³⁸ *M.C.Mehta v. Kamal Nath and Others*, (1997)1 SCC 388.

³⁹ *Rural Litigation and Entitlement Kendra v. State of UP*, AIR (1987) SC 1037.

⁴⁰ *Energy Efficiency in India*, [www. Aeee.in/wp-content/uploads/2016/03/AEE-EE-Book-online-version.pdf](http://www.aeee.in/wp-content/uploads/2016/03/AEE-EE-Book-online-version.pdf). (last accessed on 27 February 2017).

⁴¹ *National Renewable Energy Act 2015*, <http://mnre.gov.in/file-manager/UserFiles/draft-rea-2015.pdf> (Last accessed on 10 March 2017).

⁴² ALAPANA PODDER, *ENCYCLOPEDIA ON ENVIRONMENT PROTECTION AND POLLUTION LAWS* 91-92.



decreasing atmospheric CO₂ than carbon sequestration in trees. The Kyoto Protocol encourages further use of biomass energy.⁴³

CONCLUSION

On the basis of given above it can be viewed that conventional and Non conventional resources have great Impact over Environment and Human Health. Sensible use of energy resources would lead to sustainable development. Preference to renewable resources over non renewable sources is one solution. Consumer must purchase energy efficient products. Energy conservation should be priority of industrialist and business tycoons. Developing and developed countries must follow standard to maintain environment equilibrium and efforts in the direction of controlling global warming. As mentioned above sustainable development is ultimate solution of energy crises. We have Good national and international laws in order to combat with environmental crises due to rampant use of energy resources. If these laws are implemented in letter and spirit, it may help in sustainable development and may give assurance to mankind to stay in their home i.e. (the earth). Therefore, as a key component of sustainable development, renewable energy policy and project development should and can serve the environment, the economy, and social wellbeing.⁴⁴

⁴³ *Overview of Renewable Energy Potential of India*,

<http://www.geni.org/globalenergy/library/energytrends/currentusage/renewable/Renewable-Energy-Potential-for-India.pdf>
(Last accessed on 27 February 2017).

⁴⁴ Uma Outka, “*Environmental Justice Issues in Sustainable Development: Environmental Justice in the Renewable Energy Transition*”, *Journal of Environmental and Sustainability Law*, Volume 19, Issue 1 Summer, 122 (2012).