

Education, Social Sustainability and Environmental Pollution

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Abstract- Sustainability Education is often referred to as Education for Sustainable Development (ESD), which has been defined as: UNESCO, 2014. "Education for Sustainable Development allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future. Education for Sustainable Development means, including key sustainable development issues into teaching and learning; for example, Pollution control, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behavior and take action for sustainable development. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way.

Education for Sustainable Development requires far-reaching changes in the way education is often practiced today." Pollution is the introduction of substances that contaminates natural environment and cause adverse changes. The addition of unwanted material or energy in a particular environment in concentration greater than the normal renders the environment partially or wholly unfavorable for human life. Pollution control efforts by federal, State, regional, and municipal agencies and by industry have expanded tremendously within the past few years. That this increased effort is a reflection of elevated public understanding of the problem and rising public insistence upon action is inescapable. Through all media of mass communication, through the efforts of public service organizations, and through the actions and pronouncements of public officials at all levels of government, the popular desire for better control of pollution is being expressed with mounting frequency and increasing impact. This fact, in addition to generating an unprecedented expansion

in control activity, requires that communication between the individuals and agencies responsible for air pollution control and the citizen, to whom this responsibility is owed, be open, comprehensive, and forthright. Any other response to the need for public information and education concerning the problem of pollution must in the long run seriously jeopardize the pollution control effort.

I. INTRODUCTION

Our country is passing through worst phase of pollution where more than half country is bound to inhale toxic air. AQI of Delhi and NCR has reached approximately 500 levels. Environment pollution is the unfavorable alteration of our surrounding wholly or largely by products of man's action, through direct or indirect effect of changes in energy's patterns, radiation levels, chemical and physical constitutions and abundance of organisms. Education and Social sustainability is a process that promotes well-being of present generation and ensures the ability of future generation to maintain a healthy community. In a sustainable society there is a perfect balance between environment and resource. It should provide all its citizens equality freedom and healthy standard of life without compromising the needs of future generation. Pollution today is not only exerting harmful effect on present generation but also destroying all hopes for future generation. Social sustainability is a dimension of sustainability that has received little attention. Our aims in this article are to create a definition of social sustainability based on a comprehensive literature study, and to discuss the implementation of the concept in higher education settings at theoretical and practical levels. We also aim to answer the question of whether it is possible to achieve a socially sustainable and transformative practice in educational contexts to global problems. Our approach in the study is critical and reflective and, firstly, built on a literature review including policy documents, research articles and

books on sustainability from the perspectives of education and social studies. Secondly, we provide examples of practice from four university sustainability courses. In these courses, social sustainability appears in an interdisciplinary and a sustainable leadership framework. The conclusion from this study is that it is possible to implement social sustainability in various ways at the course level. We identify elementary features at basic, personal and educational levels that facilitate the implementation. However, we see the inclusion of social sustainability as the only way to reshape education and rethink the role of educational institutions. In this reshaping, ethics is the core.

A pollutant is a substance that may be defined as constituents in the wrong amount at the wrong place or at the wrong time. Pollution may be of various types depending upon the medium which are adversely affected by the pollutants. These are water pollution, air pollution, agricultural pollution, radiation pollution thermal pollution and, noise pollution. The natural source of pollution is important on global scale. It is a major issue today. Problems worsen in urban and industrial areas where man generated pollutants become major threats to living organism. It may cause diseases, allergies and even death to humans. Air pollution may be categorized in to indoor and outdoor pollution. Pollution of atmosphere inside buildings, offices and residence is called indoor air pollution and the atmospheric pollution in the open space is referred to as outdoor air pollution. Air is never found clean in nature due to natural and manmade pollution. Gases such as Carbon monoxide Sulphur dioxide, Hydrogen sulfide, and Nitrogen dioxide are continuously released in to the Environment through natural activities like volcanic activity, vegetation decay and forest fires.

In addition to these natural pollutants there are manmade pollutants like gases, mist and particulates, aerosols resulting from the chemical and biological processes used by man. These pollutants are present in the atmosphere in the concentration that disturb the dynamic equilibrium of the atmosphere and thereby affect man and his environment. Today's man has accelerated the process of air pollution to an alarming rate. In India condition is going to worsen as people

ignore the importance of clean and pollution free environment. The goal of sustainable development is clean environment today without compromising the needs of future generation.

Air pollution is most hazardous of all pollution. Polluted air cause as estimated 24% of all adult deaths from heart diseases, 25% from stroke, 43% from chronic obstructive pulmonary diseases and 29% from lung cancer according to CSE chief (Centre for Science and Environment). The data shows it is a national crisis for India. In 2013 four Indian cities made it to the top 20 most polluted cities of the world as per WHO. In 2014 the number rose to 5, in 2015 it became 7 and 2016 it is 14. Hazardous chemicals all around us not only pollute environment but also cause many irreparable damages to our body like Asthma, Allergy, skin lesions tumors and many types of cancers. One in every eight death in India is attributed to air pollution, which now contributes to a bigger disease burden than smoking.

In fact, the average life expectancy in India would have been 1.7 years higher if the air pollution level was less than the minimum level. According to Indian Council of Medical research around 77% of Indian population is exposed to outdoor air pollution level above the safe limit. In 2017 air pollution accounts for 12.4 lakhs deaths in India which included 6.7 lakhs death due to outdoor particulate matter and 4.8 lakhs deaths due to household air pollution.

The UN agency had recently also linked air pollution with increasing child mortality. India (2017) witnessed 1.10 lacs premature death of children due to air pollution, highest in the world in the category of children under five years of age. According Randeep Guleria Director of AIIMS upsurge in respiratory problem in the winter month with peak air pollution is well known particularly in north India. In recent years Delhi and its surrounding has been facing problems of smog in winters. Conditions worsen in seasons of crackers fire and when residues of rice are burnt in field. Peoples are even forced to wear oxygen mask there. Main reason for smog in Delhi is metro rail construction, large scale construction activity in NCR and Delhi Garbage burning and vehicular pollution also aids it.

In developed countries conditions are bad due to developed technologies and tests. Recently Samsung electronics apologized for illness and deaths of some of its workers saying it failed to create a safe working environment at its computer chip and display factories. Media has reported that dozens of employees who worked there, experienced leukemia and brain tumors. According to new 105 research in Chicago University who made quality life index (QLI) which tells that pollutants in air reduces the life span of individual on average 1.8 years.

Social sustainability and environment; the social work was integrated late into debates on developing sustainability. Within the social sciences, the discipline of sociology has been invisible in professional circles and public and policy discussions have focused on climate change and sustainability. When technologically centered thinking on sustainability became more prominent, the scope of the debate extended beyond wild nature to include urban environment Theory and practice centered on technology innovations to reverse climate change and protect planetary resources from overuse, while enabling the continual consumption of these resources. In the agricultural sector pollution prevention include reducing the use of water and chemical inputs adaptations of less environmentally harmful pesticides or cultivation of crop varieties with natural resistance to pests. Most important is the reducing combustion of fossil fuels by using alternative energy sources. Chemical pesticides and fertilizers adversely affect the ecosystem and population. Nowadays Sustainable agriculture avoids these problems by using bio fertilizers controlling use of hazardous chemicals and pesticides.

II. ENVIRONMENTAL POLLUTION

Environmental pollution affects society in various aspects; pollution produces serious problems for human beings to maintain its existence, protection and survival. Our biosphere is becoming more and more misbalanced day by day due to technical and industrial advancement as well as population explosion. We are exploiting the nature for the sake of our small benefits and have changed the environment to such an extent that they are not fit for inhabitation by living beings.

Pollutants are divided into two categories:

- 1) Biodegradable pollution– These pollutants are natural organic compounds which are degraded by biological or microbial action e.g., sewage.
- 2) Non Bio degradable pollutants - These are not acted upon by microbes but are oxidized and dissociated automatically. Finally divided into two classes
 - a) Waste - Glass, plastics, phenolics, aluminum cans.
 - b) Poisons - radioactive substances, pesticides, heavy metals like mercury, lead, cadmium.

Pollution is classified on the basis of the part of the environment they affect or result which the particular pollution causes. Accordingly main types of pollution are-

1. Water Pollution:

It is the type of pollution that involves the contribution of various water bodies. Various aquatic organisms depend on these water bodies and nutritious substances dissolve in water support their lives. The dissolved or suspended substances which deteriorate the quality of water and make it unfit for human consumption are called water pollutants. Main causes of air pollution are

- i. Industrial wastes get dumped in to these water bodies.
- ii. Insecticides, pesticides and ripening chemical used on plants run into the ground water system.
- iii. Eutrophication blocks sunlight from entering wide and reduces oxygen value.
- iv. Certain natural disasters like flash food and hurricanes causes enter mixing of water with harmful substances on land.

Water quality degradation is a threat to not only human health and the environment but also economic growth and social progress. And s the world's population is increasing day by day and the pollution problem to worsen more pressure will be added to the already stressed water resource which is almost at the brick of extinction especially drinking water. The contamination of the air present in the atmosphere known as air pollution. Respiration is an important life processes of all living things. We breathe air present around us. Therefore, if the air around us are

poisonous and contaminated it would have a fatal effect on us. Main causes of air pollution are

- i. Over population and increasing urbanization certain industries release some gases like sulphur dioxide and carbon monoxide, and mix with air and clouds and cause acid rain which is very harmful for plants and important monuments.
- ii. Burning of discarded plastics, wood and rubber also release carcinogenic gases into the atmosphere.

2. SMOG in Delhi NCR:

SMOG in Delhi is an ongoing severe air pollution event in New Delhi and adjoining areas in the national capital territory of India.

Air pollution in 2017 peaked on both PM 2.5 and PM 10 levels. It has been reported as one of the worst levels of air quality in Delhi since 1999. School, colleges were closed and peoples were asked not to walk outside their houses. People suffered a lot.

Outdoor air quality affects human health directly and indirectly and it also affects natural resources. Lungs eyes and other organs are affected badly. Breathing is essential so quality of air is fundamental aspect of sustainability.

3. Soil Pollution

Any undesirable change in the physical chemical or biological properties of the soil which is harmful to environment, living organisms and plants is called soil pollution. It adversely affects human, nutrition and crop production and productivity and quality and utility of soil. Main causes of soil pollution are

- i. Cadmium, chromium, copper pesticides, chemical fertilizers, are major soil pollutants.
- ii. Use of insecticides, pesticides and other artificial chemical absorb the nutrients from the soil making it unfit for growth of the plants and yields are seriously affected.

Soil is a natural resource whose pollution affected every individual. It will increase the exposure to toxic chemical thus increasing health issues to people living nearby and on the polluted land. Living working or even playing in the contaminated soil can lead to

respiratory disorders, skin diseases and many other diseases.

4. Thermal Pollution

Rise in temperature due to the release of excessive heat energy by artificial methods or natural disasters is called "Thermal Pollution".

This kind of pollution is the main cause for melting polar ice, which is in turn leading to rise in water levels. Main causes of thermal pollution are

- i. Manufacturing industries release a lot of heat energy which gets transferred to the air and water bodies.
- ii. The thermal discharges are usually favorable to bacteria and pathogens.
- iii. Sudden changes to temperature result in thermal shocks causing immediate death of fishes. Thermal pollution can harm aquatic animals such as fish amphibians and another aquatic organism. This may sometime increase the metabolic rate of aquatic animals as enzyme activity causing intake of more food in a shorter time than normal. Adverse changes in temperature may cause thermal shock, changes in dissolved oxygen and redistribution of organisms in the local community.

5. Radioactive Pollution- Radiation refers to the energy produced by fast moving particles or waves of energy. These types of pollution can occur either by dumping radioactive waste from nuclear power plants into water bodies or damage of nuclear reactors leading to radioactive contamination.

6. Noise Pollution: Noise is generally defined as an unwanted or undesirable sound and the release of unwanted sound in the atmosphere is called noise pollution. Main causes of noise pollution are

- i. Too many vehicles honking at the road.
- ii. Heavy machinery being operated in the open, trains, clubs, over populated crowds and many more.
- iii. Noise Pollution is known to cause mental stress, and depression, may damage to ear drums leading to deafness. Noise pollution has more of a psychological effect rather physical one.

Noise pollution is the major problem today specially in India. All of us face too much noise in our daily life whether it is of traffic, machines or households' instruments. Many people start developing many disorders like blood pressure, anxiety and insomnia. For healthy society healthy environment is necessary which directly or indirectly affect us.

7. Light Pollution:

Bright lighting in functions, big cities etc. causes light pollution excessive light retina causes extreme discomfort in the eyes especially during night time. Bright light strains the eyes causing headaches and migraine.

Thus, pollution with its various forms causes immense damage covering all possible aspects of human life that can be damaged. So, it is very important to prevent all these types to look forward a cleaner, greener environment and pleasant living experience.

CONCLUSION

This paper proposed a conceptual framework is for social sustainability that seeks to enhance the protection of people, all people regardless for colour, origin, culture, and socio- economic status, against risk by fostering the adaption of just and equitable social, economic and environmental policies. Many of the contemporary sustainability challenges relate to the social sphere. Risks and vulnerability arise from social polarization, urban poverty, conflict, terrorism, and natural disasters. Moreover, climate change and its effects have a strong connection to social life. All these challenges prompt a rethinking of planning and a reflective choice of methods. Many researchers argue that the Earth has reached a new geological epoch, which they call the Anthropocene. With this new epoch, they emphasize the strong human-influenced (anthropogenic) changes in the Earth's physical features, causing huge changes in the Earth's systems, with impacts far beyond the physical sphere. Simultaneously, as this irreversible situation requires a stronger ecological perspective on life on Earth, there is a need for human cooperation, democracy, and social justice. That there is a place for social sustainability is thus obvious. According to UNDESA (United Nations Department of Economic and Social

Affairs) The World Social Report 2020, governments can tackle technology change, migration, urbanization and climate crises cleverly, or leave them to divide the world population even more, since these trends easily produce a division between winners and losers; "applying an equality lens means redoubling efforts to address the root causes in equality now". Multilateral institutions and governments need to be fully committed to take action and reduce global inequality This conceptual framework articulates an alternative set of arrangements and constructs to urge other to act in concert to affect change. ESD (Education for sustainable development) for pollution issues have been covered in several researches all over the world and the major areas of focus are; implementations, cultural differences in attitudes, misconceptions, factors effecting satisfactory results, problems for an effective ESD. And although there are a number of recommendations made by researchers, the targets for ESD still have not been satisfied. But it is reality that, although research in developing ESD is the task of the education society, increasing environmental literacy is the task for all sectors, including universities, governmental authorities, NGOs, private sector, etc. The following section, therefore, highlights the recent research, focusing on the results, on ESD implementations related to air pollution issues, global warming being the focus of almost all researchers, major challenges and the driving force.

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