

Pollution under International Environmental Law

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ABSTRACT: Various activities of humans especially in the industrial world in any given civilized State pose serious threat to the existence of man by way of emitting various pollutants into the environment (water, atmosphere, soil etc.) As a result of these emissions of pollutants, sovereign States have made efforts to protect the environment from pollution internationally. This is owing to the fact that man's existence on earth is constantly being seriously threatened as a result of activities from civilized living. Pollution of the environment occurs in almost every industrial activity as a result of emissions of pollutants. Notable examples of such acts of pollution of the environment are air pollution by artificial heating using firewood, coal, gas or oil and the burning of fossil fuels and forests – increases the atmospheric carbon dioxide and leads to increase in the warmth of the earth. The research considered the various instruments regulating pollution in the international plane. The research found that sovereign States should ensure that various industrial activities carried out within their jurisdictions are so done in line with international standards and agreements so as not to cause damage to a neighbouring State via pollution. More so, State parties to international agreements on protection of the environment against pollution should uphold and apply the agreements in their various States.

KEYWORDS: Pollution, Environment

I. POLLUTION DEFINED

Generally, pollution is derived from the word 'pollute' which means to corrupt or defile¹. In relation to the environment, pollution means the contamination of soil, air, and water by noxious substances and other materials, including noise². In the United States case of *Boomer v. Atlantic Cement Co.*³, pollution was described as the contamination of the environment by a variety of sources including but not limited to hazardous substance, organic wastes and toxic chemicals. According to *Section 38 of the Federal Environmental Protection Agency Act*,⁴ pollution means: "man-made or man-aided alteration of chemical, physical or biological quality of the environment to the extent that is detrimental to that environment or beyond acceptable limits".

The Royal Commission on Environmental Pollution which was constituted on 20th February, 1970 as a standing body, 'to advise on matters, both national and international, concerning the pollution of the environment; on the adequacy of research in this field; and the future possibilities of danger to the environment', defined pollution as follows:

The introduction by man into the environment of substances or energy liable to cause hazards to human health, harm to living resources and ecological systems, damage to structures or amenity, or interference with the legitimate uses of the environment.⁵

The Organisation for Economic Co-operation and Development (OECD) has suggested the following as a general definition of pollution:

the introduction by humankind, directly or indirectly, of substances or energy into the environment resulting in deleterious effects of such a nature as to endanger human health, harm living resources and eco-systems, impair amenities or interfere with other legitimate uses of the environment.⁶

¹ U D Ikoni, 'An Introduction to Nigerian Environmental Law', (Malthouse Press Limited, 2010) p. 22.

² *Ibid.*, p. 22.

³ 26 N.Y. 2d 219, 309.

⁴ Cap. 131, LFN 1990 (as amended by Decree 59 of 1992).

⁵ J D Leeson, 'Environmental Law', (Pitman Publishing, 1995), pp. 13-14.

⁶ OECD, *Recommendation for the Implementation of a Regime of Equal Right of Access and Non-*

Article 2 of the European Union Council Directive⁷ defined pollution as: “the introduction by man into the environment of substances or energy liable to cause hazards to human health, harm to living organisms and change in the ecological system”. The United Nations Convention at Stockholm defined pollution as: “the discharge of toxic substances and the release of heat in such qualities and concentrations as to exceed the capacity of the environment, thus makes the environment harmful”. It was further noted at this conference that:

In developed countries, most of the environmental problems are caused by underdevelopment. Millions continue to live far below the minimum levels required for a decent human existence, deprived of adequate food and clothing, shelter and education, health and sanitation.

Pollution is also defined as direct and indirect introduction of substances, vibrations, heat or noise into the air, water or land by human activities which may be harmful to health or quality environment. Pollution therefore may mean any undesirable change in the natural characteristics of the environment of any matter of a given State. Thus, in the case of *Shelazia v. Water and Power Development Authority*⁸, the Indian Supreme Court held that the right to clean environment is implicit to right to life.

Again, accidents resulting from industrial activities have also contributed to the pollution of the environment with grave consequences to human kind. For example, in Bhopal, India, in 1984, the leakage of poisonous gases at a pesticide plant emitted a cloud of metal isocyanate gas across the city which led to the death of 2000 people within hours and a thousand more died 4 years following with over 200,000 people injured⁹. A nuclear reactor explosion in Chernobyl in 1986 sent nuclear fallout across Europe, increasing the risk of cancers. In the same vein, during a warehouse fire in Switzerland, 1987, agricultural chemicals, solvents and mercury flowed into the Rhine River killing millions of fish and threatening drinking water in the Federal Republic of Germany and Netherlands.

Environmental pollution could also be seen in industrial/warfare activities of developed/powerful nations over developing/less powerful ones. There came into existence a practice (albeit rarely seen in recent times) whereby companies in industrialized countries disposed of chemical toxic wastes in developing countries in shady deals with capricious or ignorant leaders or individuals. The dangerous nature of the wastes was often concealed and as a result, a number of Third World countries became the unwary recipients of toxic wastes that made civilized living possible in the industrialized countries.¹⁰

Against the foregoing background, in a nutshell, environmental pollution under international law is the introduction by man directly or indirectly of substances onto the environment resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities, including fishing, impairment of quality for use of seawater and the general reduction of amenities.¹¹ Thus, it is worthy to clearly state that there are two (2) different sources of pollution. There are primary and secondary sources of pollution. The primary source of pollution is man through his activities. The secondary source includes industrialization, erosion, flooding, desertification, bush burning, toxic and harmful waters, urbanization, emissions/discharge from transportation and industries and energy production etc. Pollution control therefore is the control of the activities of man, emissions and depositions of various particulates into the environment so as to ensure environmental protection and sustainability.

International law is defined as the law governing sovereign countries.¹² According to Statute of International Court of Justice (ICJ), the sources of International law are as follows-

1. International conventions and treaties;
2. International Customs;

Discrimination in Relation to Transfrontier Pollution, C(77)28(Final), adopted May 17, 1977 p. 3 cited by M. L. Larsson, ‘Legal Definitions of the Environment and of Environmental Damage’, p. 5.

⁷ 1996

⁸ (1994) PLD SC A 16.

⁹ The Union Carbide’s Indian Subsidiary later settled for a 470-million-dollar compensation paid to the Indian Government for the victims.

¹⁰ See EEC Supervision and Control of Transfrontier Shipments of Hazardous waste; Control Directive, Brussels, December, 1984. H. Yokowits, Global Aspects of Hazardous Waste Management prepared for World Commission on Environment and Development, 1985.

¹¹ U D Ikoni, *Op cit.*, p. 23.

¹² Law Teacher: Law Essay Professionals <https://www.lawteacher.net/free-law-essays/international-law/international-law-is-defined-as-the-law-governing-sovereign-countries-international-law-essay.php> [accessed on 18th May, 2017].

3. The general principles of law recognised by civilized nations; and
4. The teachings of most highly qualified publicists of various nations.

International law based on cooperation, coordination and reciprocity has progressed very well in the globalisation of world order in recent decade or two. Thus, the term “pollution” under international environmental law will be considered in line with the various provisions of what pollution is under some international instruments, international customs and textbooks and the key steps taken to protect the environment against pollution.

II. TYPES OF ENVIRONMENTAL POLLUTION

The key types of environmental pollution are air pollution,¹³ ozone depletion and global warming. Other types of pollution are noise pollution, soil and water pollution.¹⁴

2.1. Air Pollution

The need to investigate into the abuse of air and how law can be used to control various violations on the environment is founded on the reason that man can live for weeks without food, a few days without water, but only a few minutes without air.¹⁵ In other words, human beings can reject or control the source of most of their food and water but they cannot avoid breathing air, regardless of its impurity or source.¹⁶ Therefore, air pollution may be described as the introduction of any substance in sufficient concentration into the air which in consequence produces a harmful effect on man or other animals, vegetation and other materials.¹⁷

According to Cooper and Alley, air pollution is the addition of harmful substances to the atmosphere resulting in damage to the environment, human health and quality of life.¹⁸ It is the contamination of natural air with different contaminating particles which includes chemicals, harmful fumes, gases, radioactive substances, dust, smoke etc. As a result, there came the need to protect the environment against air pollution under international environmental law. This obligation to protect the environment under international law in relation to air pollution was laid down in the *Trail Smelter* case¹⁹ which provides that no State has right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or property or person therein when the case is of serious consequences and the injury is established by clear and convincing evidence.²⁰

As a result of this, the *Geneva Convention on Long-Range Transboundary Air Pollution* was signed into law in the year 1979 based on the initiative of the Scandinavian countries and under the auspices of the United Nations Commission for Europe. Its *Article 1 (a)* defined “air pollution” to mean the introduction by man, directly or indirectly, of substances or energy into the air resulting in deleterious effects of such a nature as to endanger human health, harm living resources and ecosystems and material property and impair or interfere with amenities and other legitimate uses of the environment, and “air pollutants” shall be construed accordingly; while its *Article 1 (b)* defined “Long-range transboundary air pollution” means air pollution whose physical origin is situated wholly or in part within the area under the national jurisdiction of one State and which has adverse effects in the area under the jurisdiction of another State at such a distance that it is not generally possible to distinguish the contribution of individual emission sources or groups of sources. Other salient provisions of the Convention will be stated below.

2.1.1. Article 2: Fundamental Principles

The Contracting Parties, taking due account of the facts and problems involved, are determined to protect man and his environment against air pollution and shall endeavour to limit and, as far as possible, gradually reduce and prevent air pollution including long-range transboundary air pollution.

2.1.2. Article 3

The Contracting Parties, within the framework of the present Convention, shall by means of exchanges of information, consultation, research and monitoring, develop without undue delay policies and strategies which

¹³ See Sands, Principles, PP. 317ff; and Birnie and Boyle, International Law and the Environment, Cap. 10.

¹⁴ See International Law and Global Climate Change (eds. R. Churchill and D. Freestone), Dordrecht, 1991.

¹⁵ U D Ikoni, *Op cit.*, p. 38.

¹⁶ *ibid.*, p. 38.

¹⁷ *ibid.*, p. 38.

¹⁸ C D Cooper and F C Alley, ‘Air Pollution Control: A Design Approach’ (Waveland Press, 1994) p. 694.

¹⁹ 35 AJIL, 1941, P.716, 9AD, P.317.

²⁰ I L Nwokike, ‘Pollution Under International Law’, (A Seminar Paper presented to the 2015/16 PhD Class of Faculty of Law, Nnamdi Azikiwe University, Awka, 2016), p. 19.

shall serve as a means of combating the discharge of air pollutants, taking into account efforts already made at national and international levels.

2.1.3. Article 4

The Contracting Parties shall exchange information on and review their policies, scientific activities and technical measures aimed at combating, as far as possible, the discharge of air pollutants which may have adverse effects, thereby contributing to the reduction of air pollution including long- range transboundary air pollution.

2.1.4. Article 5

Consultations shall be held, upon request, at an early stage between, on the one hand, Contracting Parties which are actually affected by or exposed to a significant risk of long-range transboundary air pollution and, on the other hand, Contracting Parties within which and subject to whose jurisdiction a significant contribution to long-range transboundary air pollution originates, or could originate, in connection with activities carried on or contemplated therein.

2.1.5. Article 6: Air Quality Management

Taking into account Articles 2 to 5, the ongoing research, exchange of information and monitoring and the results thereof, the cost and effectiveness of local and other remedies and, in order to combat air pollution, in particular that originating from new or rebuilt installations, each Contracting Party undertakes to develop the best policies and strategies including air quality management systems and, as part of them, control measures compatible with balanced development, in particular by using the best available technology which is economically feasible and low- and non-waste technology.

2.1.6. Article 7: Research and Development

The Contracting Parties, as appropriate to their needs, shall initiate and co-operate in the conduct of research into and/or development of:

- (a) Existing and proposed technologies for reducing emissions of sulphur compounds and other major air pollutants, including technical and economic feasibility, and environmental consequences;
- (b) Instrumentation and other techniques for monitoring and measuring emission rates and ambient concentrations of air pollutants;
- (c) Improved models for a better understanding of the transmission of long-range transboundary air pollutants;
- (d) The effects of sulphur compounds and other major air pollutants on human health and the environment, including agriculture, forestry, materials, aquatic and other natural ecosystems and visibility, with a view to establishing a scientific basis for dose/effect relationships designed to protect the environment;
- (e) The economic, social and environmental assessment of alternative measures for attaining environmental objectives including the reduction of long-range transboundary air pollution;
- (f) Education and training programmes related to the environmental aspects of pollution by sulphur compounds and other major air pollutants.

2.1.7. Article 8: Exchange of Information

The Contracting Parties, within the framework of the Executive Body referred to in article 10 and bilaterally, shall, in their common interests, exchange available information on:

- (a) Data on emissions at periods of time to be agreed upon, of agreed air pollutants, starting with sulphur dioxide, coming from grid-units of agreed size; or on the fluxes of agreed air pollutants, starting with sulphur dioxide, across national borders, at distances and at periods of time to be agreed upon;
- (b) Major changes in national policies and in general industrial development, and their potential impact, which would be likely to cause significant changes in long-range transboundary air pollution;
- (c) Control technologies for reducing air pollution relevant to long-range transboundary air pollution;
- (d) The projected cost of the emission control of sulphur compounds and other major air pollutants on a national scale;
- (e) Meteorological and physico-chemical data relating to the processes during transmission;
- (f) Physico-chemical and biological data relating to the effects of long-range transboundary air pollution and the extent of the damage which these data indicate can be attributed to long-range transboundary air pollution;
- (g) National, sub-regional and regional policies and strategies for the control of sulphur compounds and other major air pollutants.

2.1.8. Article 9: Implementation and Further Development of the Cooperative Programme for the Monitoring and Evaluation of the Long-Range Transmission of Air Pollutants in Europe

The Contracting Parties stress the need for the implementation of the existing "Cooperative programme for the monitoring and evaluation of the long-range transmission of air pollutants in Europe" (hereinafter referred to as **EMEP**) and, with regard to the further development of this programme, agree to emphasize:

- (a) The desirability of Contracting Parties joining in and fully implementing EMEP which, as a first step, is based on the monitoring of sulphur dioxide and related substances;
- (b) The need to use comparable or standardized procedures for monitoring whenever possible;
- (c) The desirability of basing the monitoring programme on the framework of both national and international programmes. The establishment of monitoring stations and the collection of data shall be carried out under the national jurisdiction of the country in which the monitoring stations are located;
- (d) The desirability of establishing a framework for a cooperative environmental monitoring programme, based on and taking into account present and future national, sub-regional, regional and other international programmes;
- (e) The need to exchange data on emissions at periods of time to be agreed upon, of agreed air pollutants, starting with sulphur dioxide, coming from grid-units of agreed size; or on the fluxes of agreed air pollutants, starting with sulphur dioxide, across national borders, at distances and at periods of time to be agreed upon. The method, including the model, used to determine the fluxes, as well as the method, including the model used to determine the transmission of air pollutants based on the emissions per grid-unit, shall be made available and periodically reviewed, in order to improve the methods and the models;
- (f) Their willingness to continue the exchange and periodic updating of national data on total emissions of agreed air pollutants, starting with sulphur dioxide;
- (g) the need to provide meteorological and physico-chemical data relating to processes during transmission;
- (h) the need to monitor chemical components in other media such as water, soil and vegetation, as well as a similar monitoring programme to record effects on health and environment;
- (i) the desirability of extending the national EMEP networks to make them operational for control and surveillance purposes.

By virtue of *Article 9* of this Convention wherein Contracting Parties undertook to develop **EMEP**, in 1984, a Protocol was adopted in relation to the long term financing of the project. Other Protocols that have been adopted include:

- a. 1985 Helsinki Protocol for the reduction of sulphur emissions or their transboundary fluxes by at least 30 percent as soon as possible and at latest, by 1993, using 1980 levels as the basis for the calculation of reductions;²¹
- b. 1988 Sophia Protocol on control of emissions of nitrogen oxides or their transboundary fluxes – parties to reduce their national annual emissions of nitrogen oxides or their transboundary fluxes;
- c. 1991 Protocol on the control of emissions of volatile organic compounds and their transboundary fluxes which established specific targets and timetables even though the protocol also provided for a choice of at least three (3) ways to meet the requirements, to be determined by the parties upon signature and dependent upon the level of volatile emissions of organic compounds;
- d. 1994 Oslo Protocol on further reduction of sulphur emission,²² which specified sulphur emission ceilings for parties for the years 2000, 2005 and 2010 with the provision of a reporting requirement to the Executive Body on periodic basis²³; and
- e. two other protocols were concluded in 1999, one on persistent organic pollutants and the other on heavy metals.

In the year 1997, a revised implementation committee was established with the responsibility to review compliance with all the protocols of the Convention under a common procedure²⁴. The committee considered questions of non-compliance with a view to finding adequate solutions and then to report to the Executive Board.²⁵

Again, the *Stockholm Convention on Persistent Organic Pollutant (POP)* was signed into law in 2001. It provides for the control of the production, trading, disposal and use of twelve named POP even though there is

²¹ EU obligations concerning the curbing of emissions of sulphur dioxide and nitrogen oxide. See Directive 99/30/EC and Sands, Principles, p.761ff.

²² 33 ILM, 1994, p. 1540.

²³ See Article 5.

²⁴ I L Nwokike, *Op cit.*, p. 12.

²⁵ See Executive Board Decision 1997/2, annex, as amended in 2001, ECE/EB AIR/73 annex v. the Executive Board may take decisions concerning the compliance of parties. See Decision 2002/8 criticising Spain. See the Committee Ninth Report, 2006 ECE/EB AIR/2006/3 and Add 1 and 2.

temporary exception for Dichlorodiphenyltrichloroethane (DDT).²⁶ There is also a procedure to add other such pollutants to the list and an interim financial mechanism with the Global Environmental Facility (GEF),²⁷ was established as the principal entity to help developing countries.²⁸ In May, 2005, a conference of States parties established a subsidiary body, the Persistent Organic Pollutants Review Committee in order to assist in implementation activities.²⁹

Also, the 1986 protocol to the Paris Convention for the prevention of marine protection from land-based sources extended that agreement to include atmospheric emissions of pollutants³⁰. Article 212 of the Law of the Sea Convention, 1982 requires States to adopt laws and regulations to prevent, reduce and control atmospheric pollution of the Marine environment, although no specific standards were set.³¹

2.2. Ozone Depletion and Global Warming

The discovery that air pollutants are causing long-term, and potentially irreversible, damage to the global atmosphere has been a powerful catalyst for the development of international environmental law.³² Unlike transboundary pollution that primarily affects countries downwind or downriver, pollution of the earth's atmosphere threatens serious damage to the entire planet and as a result, mounting evidence of damage to this global commons has forced the countries of the world to join together in unprecedented efforts to develop international environmental controls.³³

Today, ozone depletion and global warming form part of the two (2) principal problems caused by pollution of the global atmosphere. It is worthy of note to state here that the discovery of a hole in the earth's Antarctica in the year 1985 stimulated intense intergovernmental negotiations³⁴. These negotiations culminated in a remarkable diplomatic achievement, the signing of the Montreal Protocol on Substances that Deplete the Ozone Layer in September, 1987.³⁵

The Montreal Protocol's innovative approach for implementing global, technology-forcing regulation in the face of widely disparate national interests and considerable scientific and technological uncertainty has become a model for the development of international environmental controls.³⁶

Again, in relation to ozone depletion, it is worthy to state that high in the earth's stratosphere is a layer of ozone, an unstable compound of three oxygen atoms, that is essential to the health of the planet. Due to the fact that ozone absorbs certain wavelengths of ultraviolet radiation, it protects the earth from excessive radiation that otherwise would cause millions of skin cancer deaths, widespread blindness, and other serious health problems, as well as severe damage to plants and animals.

In the year 1974, two (2) scientists from the University of California, Sherwood Rowland and Mario Molina, published a paper suggesting that the ozone layer could be threatened with destruction from a family of chemicals once hailed as a miracle of modern science.³⁷ Chlorofluorocarbons (CFCs) which were chemicals used in a wide variety of industrial applications including aerosol propellants, foam blowing, air conditioning, and solvents, were discovered in the 1920s but only used widely beginning in the 1950s. Ironically, much of their attention stemmed from their lack of other environmental risks – they are not toxic or flammable, and they

²⁶ I L Nwokike, *Op cit.*, p. 12.

²⁷ The Global Environmental Facility was itself set up in 1991 to aid developing countries to fund projects and programmes protecting the global environment. In particular, the facility supports projects related to biodiversity, climate change, International waters, land degradation, the ozone layer and Persistent Organic Pollutants. See also the Beijing Declaration of the Second Global Environmental Facility 2003, 44 ILM, 2005, p. 1004.

²⁸ See the Convention website www.pops.int/.

²⁹ I L Nwokike, *Op cit.*, p. 13.

³⁰ Also note that in 1987, the Second International Conference on the Protection of the North Sea urged States to ratify the Protocol: see ILM, 1988, p. 835; while in 1990, North Sea States agreed to achieve by 1999 a reduction of 50 percent or more in atmospheric and river-borne emissions of hazardous substances, provided that best available technology permitted this: see IMO DOC. MEPC 29/INF26.

³¹ See Canada-United States Air Quality Agreement, 1991 which required the reduction of sulphur dioxide and nitrogen oxide emissions from the two States to agreed levels by the year 2000. Compliance Monitoring by Continuous Emission Monitoring Systems were provided for.

³² R V Percival Et al, *Environmental Regulation: Law, Science, and Policy* (4th edn, Aspen Publishers, 2003) pp. 1046-1047.

³³ *Ibid.*, p. 1047.

³⁴ *Ibid.*, p. 1047.

³⁵ *Ibid.*, p. 1047.

³⁶ *Ibid.*, p. 1047.

³⁷ *Ibid.*, p. 1047.

have excellent insulating, cooling, and cleaning properties.³⁸ The remarkable stability of CFCs allows them to remain in the atmosphere for up to a century or more, unlike conventional air pollutants, which are broken down in a period of hours or days. When CFCs reach the upper atmosphere, they could be broken apart by the intense energy of the sun thereby releasing chlorine. The chlorine would then act as a catalyst, converting the ozone (O₃) to oxygen, destroying the earth's protective ozone shield.³⁹

In the mid-1970s, the United States accounted for almost one-half of global CFC use, the majority of it used as propellants for aerosol sprays and as publicity focused on potential harm to the ozone layer, American consumers stopped buying aerosol sprays (including those without CFCs); in less than two years the market for products with such sprays dropped by two-thirds without any governmental regulation.⁴⁰ Finding agreement on regulation of the use of CFCs impossible, the parties in March, 1985 approved the *Vienna Convention to Protect the Ozone Layer*, which established a framework to govern future scientific cooperation and negotiations. This Convention is a framework agreement, providing the institutional structure for the elaboration of protocols laying down specific standards concerning the production of CFCs. Under the *Article 2* of the Convention, contracting parties agree to take appropriate measures to protect human health and the environment against adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer. It was also agreed by the contracting parties to cooperate in the collection of relevant material and in the formulation of agreed measures and to take appropriate legislative or administrative action to control, limit, reduce or prevent human activities under their jurisdiction or control should it be found that these activities have or are likely to have adverse effects resulting from modification or likely modification of the ozone layer. Also, a secretariat and dispute settlement mechanism were established.⁴¹ Nonetheless, in general, the Convention was little more than a framework within which further action could be taken.

Even before international research could confirm the role of CFCs in ozone depletion, the discovery of the ozone "hole" had demonstrated the vulnerability of the ozone layer thus contributed to a heightened sense of urgency that spurred international negotiations based on the framework established by the Vienna Convention. Four negotiating sessions, beginning in Geneva in December, 1986 culminated in the signing of the *Montreal Protocol on Substances that Deplete the Ozone Layer* in September, 1987.⁴² The Protocol called for a freeze on production and consumption of CFCs and halons at 1986 levels, followed by a 50 percent reduction in CFC use by industrialized countries over a ten-year period while developing countries were allowed to increase CFC consumption for ten years, trade restrictions were imposed on imports to, and exports from, non-parties to the Protocol.⁴³

The Protocol represented a remarkable diplomatic achievement given the obstacles to agreement on international environmental controls.⁴⁴ First, the science of ozone depletion was highly uncertain throughout the entire negotiations process. Year-to-year measurements of global ozone had shown no statistically significant changes. Estimates of eventual ozone loss anticipated to occur decades later – actually had declined from about 18 percent in 1979 to only 3 percent in 1983. Despite the discovery of the ozone "hole", scientists were unable to link it precisely to CFCs until after the Protocol was completed (some environmentalists even had sought to delay negotiations in hopes that better evidence would become available.⁴⁵

2.3. Noise Pollution

"Noise" is any loud sound, disagreeable sound⁴⁶. Noise pollution is therefore any undesirable or unwanted sound that is a nuisance or is harmful to persons affected by it thus, noise is considered to be excessive or unwanted, thereby resulting in noise pollution when it is of such a nature (whether loud or low) as to unreasonably interfere with the peace, comfort and convenience of the person hearing it.⁴⁷ The issue of noise pollution is essentially a feature of an urban settlement.⁴⁸

The causes of noise pollution are but not limited to the following:

1. traffic congestion/vehicle horn;
2. operation of religious institutions;

³⁸ *Ibid.*, p. 1047.

³⁹ *Ibid.*, pp. 1047-1048.

⁴⁰ R Benedick, 'Ozone Diplomacy: New Directions in Safeguarding the Planet', (Cambridge, 1991), p. 31.

⁴¹ Articles 7 and 11. See also the UN Environmental Programme, 'Handbook for the Vienna Convention for the Protection of the Ozone Layer, 7th edn. Nairobi, 2006.

⁴² R V Percival Et al, *Op Cit.*, p. 1049.

⁴³ *Ibid.*, p. 1049.

⁴⁴ R Benedick, *Op Cit.*, p. 9.

⁴⁵ *Ibid.*, p. 9.

⁴⁶ See Collins, 'Australian Pocket English Dictionary', p. 573.

⁴⁷ U D Ikoni, *Op Cit.*, p. 33.

⁴⁸ *Ibid.*, p. 33.

3. music shops/record sellers;
4. increasing rate of urbanization;
5. industrial growth/activities;
6. city structures,⁴⁹ etc.

There are four identifiable effects of noise pollution and they are interference with speech, interference with sleep, alteration of human health and interference with work tasks. However, noise pollution can be controlled through the following measures:

1. enactments of laws and regulations on noise pollution;
2. do not play music at a level that will annoy your neighbours;
3. realize that your pleasure should not lead to your neighbour's distress;
4. consider your neighbours when you do something noisy and inform them before hand⁵⁰, etc.

2.4. Soil Pollution

Soil pollution is the presence of human-made chemicals or other alteration in the natural soil environment. Soil pollution is the presence of toxic chemicals (pollutants or contaminants) in the soil in such a concentration that it endangers the humans and the ecosystem. It is usually caused by industrial activities, urban wastes, agricultural activities, accidental oil spillage, acid rain, radio-active pollutants (nuclear testing), etc. Generally, the effects of soil pollution are decrease in soil fertility, change in soil structure, economic consequences, soil erosion, toxic dust and deterioration of plants' growth.

Soil pollution can be controlled in the following ways:

1. organic methods of farming (no usage of chemicals, pesticides and fertilizers);
2. regulations on disposal of hazardous wastes;
3. controlled grazing and forest management;
4. proper dumping of unwanted materials;
5. afforestation;
6. public awareness – to educate the public on health, economic and environmental hazards of soil pollution;
7. recycling and re-use of wastes such as paper, plastic, metals;
8. ban on toxic chemicals for examples use of pesticides, herbicides, etc

2.5. Water Pollution

Water pollution is the constant addition of pollutants into the water bodies resulting in contamination of the water. Water pollution has also been defined as contamination of the water by some substances to such a degree that the water cannot be used for specific purpose and thus rendering water unfit for the ordinary usage.⁵¹ It is primarily a public health problem. We have surface water pollution, ground water pollution and marine water pollution. The major sources of water pollution are:

1. discharge of wastes from industries into streams and rivers;
2. wastes from mining operations;
3. oil spillage and leaks;
4. domestic wastes from homes;
5. use of artificial fertilizer for agriculture and pesticides, etc.

The effects of water pollution are as follows:

1. damage to human health;
2. destruction of aquatic lives;
3. water becomes unfit for drinking and for agriculture and cooking;
4. restriction and reduction of light penetration;
5. reduces photosynthesis which restricts plant growth;
6. economic consequences etc.

Water pollution can controlled by treating the various industrial effluents to safety levels before discharge, by passing legislations setting standards and barring water pollution by discharge and provision of strict penalty for water pollution through the law and enforcement to serve as a deterrence.

III. OTHER INTERNATIONAL INSTRUMENTS AGAINST ENVIRONMENTAL POLLUTION

We have considered above, the relevant legal instruments in relation to international environmental protection against pollution however, it will be apt to list other international instruments against environmental pollution.

⁴⁹ *Ibid.*, pp. 34-35.

⁵⁰ *Ibid.*, p. 37

⁵¹ U D Ikoni, *Op Cit*, p. 42.

Although international environmental law originated as a collection of rules that grew sporadically as a response to specific environmental problems since 19th century, today, there exists a plethora of international instruments on the protection of the environment against pollution and they are as follows:

1. The Outer Space Treaty, 1967 which provides in its Article 1 that the exploration and use of outer space is to be carried out for the benefit and in the interests of all States.
2. The Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration), 1972 the provisions of which have been earlier stated in this seminar paper;
3. the United Nations Environmental Programme (UNEP) in 1982 with its headquarters in Nairobi, Kenya;
4. the World Commission on Environment and Development (WCED) created in 1987;
5. the United Nations Conference on Environment and Development (UNCED), 1992 which was held in Rio de Janeiro and of which its provisions have been considered earlier in this seminar paper;
6. the Antarctic Treaty of 1959 for the restriction of sub-continent to peaceful uses only and prohibits military activities, weapons testing and disposal of radioactive wastes;
7. the 1982 UN Convention on the Law of the Sea Deal with the broad aspect of marine protection and the legislative and enforcement competence of Littoral States;
8. the International Convention for the Prevention of Pollution of the Seas by Oil, 1945⁵²;
9. International Convention Relating to Intervention on the High Seas in cases of Oil Pollution Casualties, 1969⁵³;
10. International Convention on Civil Liability for Oil Pollution Damage, 1969⁵⁴;
11. Convention on the Prevention of Marine Pollution by Dumping Wastes and other Matters, 1972⁵⁵;
12. International Convention for the Prevention of Pollution from Ships, 1973⁵⁶;
13. the Kyoto Protocol of 1977;
14. Convention on the Control of Transboundary Movements of Hazardous Wastes, 1989;
15. The United Nations Convention on the Protection and use of Transboundary Water Course and International Lakes, 1992;
16. Convention on the Law of the Sea, 1982 which provides in its Article 211 (2) that States are to legislate for the prevention, reduction and control of pollution of the marine environment from vessels flying their flag or of their registry; etc.

IV. SUMMARY

All these instruments are geared towards the protection of the environment against various forms of pollution. These instruments also set out to ensure that there are adequate conservation of natural resources and also to engender a safe environment for the future generations. This is in line with the goal of achieving sustainable development the world over. In the 1992 United Nations Earth Summit at Rio de Janeiro, Brazil emphasized the need for sustainable development as: “development which meets the needs and aspirations of the current generation without compromising the ability to meet those of future generations”. This paper recommends that sovereign States should ensure that various industrial activities carried out within their jurisdictions are so done in line with international standards and agreements so as not to cause damage to a neighbouring State via pollution. More so, State parties to international agreements on protection of the environment against pollution should uphold and apply the agreements in their various States.

⁵² 327 UNTS 3 as amended.

⁵³ 9 ILM 1970, 25.

⁵⁴ 9 ILM 1970, 45.

⁵⁵ 9 ILM 1972, 1294.

⁵⁶ 9 ILM 1973, 1319.