POLLUTION AS AN UNINTENDED CONSEQUENCE OF INDUSTRIALIZATION: PROFFERING LEGAL REMEDIES*

Abstract
This article introduces us to environmental law, both toxic tort and environmental regulation. The union between human beings and the environment is one inseparable subject of study. Man cannot exist without an environment, and in fact a conducive one. Most of the activities (industrial and agricultural activities) have adverse effects on the quality and life span of the environment. However, there has been sheer adamancy and ignorance in acknowledging the environmental effect. There has been instead, a continuation in those activities that harm the environment and a rise in the development of these activities. Unfortunately, the more the environmental degrading activities, the more the risk and dangers posed to the environment and its inhabitants. It is in this wise that regulations of environmental activities became as necessary as the activities sought to be regulated. The article makes an attempt to x-ray the various regulatory mechanisms which impact on these activities in order to balance the conflicting interest of man's existence and environmental effects, in view of the global society. The article will also be geared towards creating awareness, of the existence of environmental regulations, encourage strict adherence to environmental laws and make necessary recommendation on how to further regulate environmental infractions in order to sustain a safe environment.

Keywords: Pollution, Unintended Consequence, Industrialization, Legal Remedies

1. Introduction:

The environment is the collection of support systems that make the lives of humans and other species possible. It is the air we breathe, the ground beneath our feet, the water we drink and the energy that heats our homes and powers our society. The environment is not only the tangible elements of earth, air, water and energy, but also the process could be local or global concern. The challenge in planning for the environment can be overcome by anticipating how these processes and interaction are affected by human activity and to act so that their integrity can be preserved under changing conditions.[1] The environment is the complex whole of physical, social, cultural, economic and aesthetic factors which affect the individuals, communities and ultimately determine their form, character, relation and survival. In this research we will be looking at the environment from the physical perspective. The physical environment has been defined (natural and constructed) to includes: land and climate, vegetation, wildlife, the surrounding land uses and the physical character of an area, infrastructure, public services, air, noise and water pollutions.[2] In simpler terms, the environment consists of the natural habitat of man and all other living organisms, wherein man and all living organisms sustain and fend for themselves in a way that either maintains, improves or depletes the quality of the natural habitat.[3]

Economic development usually entails changes in the environment for example, even building a house or road changes the place where the house or road is built, with the industrial revolution came team engines, internal combustion and electricity. They provided the power to develop the economy more quickly and the power to change the environment drastically. The industrial revolution began in England in the 1830s and spread first to Europe and the United States, becoming well established in those places before World War 1. By the beginning of the twentieth century, businesses located in countries around the north Atlantic had learn to extract tremendous material wealth from the earth natural resources but were unaware of the unintended consequence of those economic activities. They give little consideration, for example, to the impact of building the railroad on coal and iron ore supplies or on the contamination of air, water and public lands. In the United States, farmers and forester gave little consideration to the impact of clearing land on forest depletion and on soil erosion by wind and water. After world II, the businesses gave little consideration to the impact on the environment [air, water, and soil] of pesticides, herbicides, fertilizer, heavy metals and the waste produce from the manufacture of plastic and other synthetic chemicals. Environmental degradation increase with the spread of a consumer oriented economy in more and more developed and developing countries.

By the end of the twentieth century, the industrial revolution had expanded to every continent on earth, accompanied by a spread in consumer society and, especially in developing and underdeveloped countries, by a population explosion. The general public, government and businesses became increasingly aware of the unintended environmental consequences of the resulting increase in economic activities. In fact, many of those

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[1] Maintaining Environmental Integrity' Ottawa.ca/en/official-pna-0/24-maintainning-environmental-integrity assessed http://www.air.com.au/industry/factrefine.html 25/02/2023
[2] Ibid
[3] Ibid

consequences were proving to be negative, imposing significant costs on personal health and quality of life. During the 1970s, the public, government, and businesses began asking: how do we handle the unintended, negative effect to the environment from the rapid increase in population, consumption and economic activity? For individual whose personal health or property was damaged, the answer at least in part seemed to lie in tort law, i.e., in recovering monetary compensation for specific businesses breaches of their general obligation to those individuals. The resulting class actions and punitive damages have resulted – and continue to result – compensation to large number of individuals at a significant cost to business. Still, compensating some individuals - for harm already suffered seemed to be an inadequate response to the risk of personal injury to large portions of the general population and of damage to their property, as well as damage to their natural resources such as air and rivers.

Preventing the creation and spread of environmental contamination seem to provide a better solution than solely paying compensation for harm resulting from pollution. The nature of the resulting government regulation has varied – generally according to whether a technology causing pollution is implemented on an economically significant scale before or after the risk of harm from the pollution is discovered. Preventive measure can be devised if the potential risks are discovered before the technology is implemented on a large scale. Remediation – along with preventing measures- is necessary if the negative impact is discovered after commercialization. Most recently, environmental concern has reach a new dimension, rising question about the sustainability of many industries and more generally, about the sustainability of a consumer-oriented economy.

The terms contamination and pollution have the same meaning and so are inter-changeable. In each case, we are referring to environmental contamination' or environmental pollution'. The meaning of all this term includes altering the air, water, or soil by introducing a toxic substance in such a way as to cause personal injury to animals or humans who ingest or are exposed to the air, water, and soil. Ingestion occur when animals or human introduce pollution into their bodies, typically by breathing or eating. Animal and humans can ingest pollution intentionally by eating contaminated plants or meat or unintentionally by consuming other contaminated substances e.g. Children ingesting contaminated soil when they put toys in their mouths. The manner in which human ingest pollution is often called the 'critical path'. Once human ingest pollution the problems raised become public health issues as well as environmental issues.[4]

2. Judicial Remedies

A Rights Approach to Deterrence

The point has to be made that even where a company or human factors contribute to the infraction of the environment and has been adjudged guilty or liable, there has to be sanction that would sufficiently deter. This is so because if the only sanction is for the payment of some nominal fine, rather than deter, it would encourage the corporation to pollute and pay the assured meager fines. The emerging trend the world over is to impose strict liability on companies for pollution caused by them. This is in recognition of the fact that if a polluter can be found there is no guarantee that any compensation paid out will be spent on clean up, and that clean-up is likely to fall upon the public purse in any event. Legislative, and more importantly, enforcement measure are put in place to encourage companies to limit their environmentally damaging activities, not because to do otherwise would be a crime, but rather because to do otherwise would be economically unwise. It was for this reason that the Niger delta technical committee recommended the establishment by this year of regulations that would compel oil companies to have insurance bonds against environmental pollution, strength independent regulation of oil pollution and make enforcement of critical environment laws and prosecution of polluters and fraudulent cases of national priority.[5] More seriously, to complement such measures,[6] in the face of the obvious consequences of oil pollution on health which in some cases result in death the time has come for oil companies to be charged with murder of the innocent citizens of the Niger delta region who die daily as a result of contaminations from oil exploitation activities.

Common Law Regime

The torts relevant to the activities of the petroleum industry are negligence, nuisance and the rule in *Rvlands v Fletcher*.[7] Except the statute and regulations empowering or granting right for petroleum exploration, prospecting

[4] Of course, contaminating or polluting air, water, and soil can reduce the value of those physical assets for users and owners. The value of physical assets can be derived either from their use or from their transfer. Through migration, pollution can spread to other air, water, and soil thereby reducing their value as well. Migration occurs when the action of gravity, winds or water carries pollution from originally contaminated air, water and soil to other air, water, and soil.

[5] Ibid

[6] F. Guillaum, Green and black: environmentalism and oil conflicts in Ecuador. In G. Fontaine, G. Van Vliet, & R. Pasquis (Coord) (2007). *Environmental Policies and Governance in Latin America* (pp.223- 254). FLACSO-IDDRI-CIRAD, (2007), 21

[7] Ibid

and mining specifically exclude the application of these torts, communities or individual have the legal rights to sue the offending companies for any adverse consequences of their activities. It should be noted that the provision of the Mineral Act have not derogated from the rights enjoyed by dwellers of land in Nigeria including the respondent.[8] It must be mentioned also that the common rights of fishery in Idal waters is not affected by the Mineral Act[9]. On application of the rule in *Rylands v. Fletcher*, "it is clear therefore that a person who is in possession or in control of land (such as appellant herein) and keeps on such land petroleum products "exist under the rule in *Rylands v. Fletcher."* It must be said also that the establishment of crude oil pipeline on land with the potential of escape or spill of its contents is clearly non-natural user of the land." [10]the rule laid down in *Rylands v. Fletcher* is, on the other hand, to the effect that the occupier of land who brings and keep upon it anything likely to do damage if it escapes, is bound at his peril its escape, even if they have not been guilty of negligence.[11]

Negligence

The tort of negligence "connotes" the complex concept of duty, breach and damage thereby suffered by the person to whom the duty is owed. Negligence may consist of an action or omission. The main difficulties for the plaintiff remain the proof of sense of reasonable care on the part of the operator.[12] The plaintiff also has the burden of showing causal link between his damage and the defendant's action.[13] In a highly technical industry such as the petroleum industry, proof of negligence requires expert's scientific evidence, unavailable and unaffordable to the largely unschooled and poor victims who suffer from the ravages of exploratory activities of the oil companies. *In Chinda & 5 Others v. Shell Petroleum Development Company of Nigeria Ltd*,[14]the plaintiff alleged that owing to the defendant's company negligence in the control and management of their flares' site which was within a short distance of the plaintiff villages, a lot of damage was done to the plaintiff trees lands and houses. Holden C.J. held that the plaintiff has not produced any evidence of negligence in the defendant operation of their flares sites and therefore would fail. In *Atubin v Shell B.P. petroleum Development Company of Nigeria Ltd,*[15]the plaintiff claimed that the defendant caused crude oil, gas and chemicals to escape from pipelines under their control thereby destroying fishes in the lake and their farmland, the court held that the plaintiff did not prove that the defendant was negligent. In *Seismograph Service Ltd v Benedict Etedjere Onokpasa,*[16]the main question before the court was whether the shooting operations carried out by the defendant company caused extensive damage to some buildings owned by the plaintiff. Thus, the plaintiff had the burden to establish the negligence of the defendant company in its operation. He was, however unable to do this because the fact of the negligence was not within his knowledge.

Although a plaintiff may successfully plead the doctrine of *res ipsa loquitur* [17]to relieve him of the burden of establishing defendant negligence the defendant can rebut this presumption by mere explanation of the cause of spillage. The oil companies are well positioned, considering the enormous resources at their disposal to afford and supply expert evidence in rebuttal and if unchallenged, must be accepted and acted upon by the court. In *Seismograph Service Ltd v Akpornovu*[18] the respondent case against the appellant was that the appellant had caused damage to his building during seismic operations. The respondent failed to call expert evidence in support of the casual link between the damage and the appellant seismic operations as alleged. The appellant called a seismologist who gave unchallenged evidence. The learned trial judge nevertheless held the appellant liable. Dissatisfied, the appellant appealed and the Supreme Court reversed the decision of the lower court on the grounds that the learned trial judge ought to have acted upon the unchallenged evidence.

Nuisance

Nuisance may be defined as an unjustified or unlawful interference with the plaintiff's use or enjoyment of his land.[19] A nuisance may be public or private. Whereas public nuisance which affects the public as a whole can rise to both civil and criminal proceedings, a private nuisance consists of an act or omission which materially affects the reasonable comfort and convenience of the general public or a section of the general public. Where the interference is with his land, then it is a private nuisance. Furthermore, Clark and Lindsell observed that:

> An actionable nuisance is incapable of exact definition. It is an act or omission which is an interference with, disturbance of, or annoyance to a person in the exercise or enjoyment of (a) a

[8]*Adeshina v. Lemonu* (1965) 1 all N.L.R. (pt. 1) page 233; *Braide v. Adoki* 10 N.L.R. 15.
[9]*ELF (Nig) Ltd v. Operesillo & Anor* (1994) 6 N.W.L.R. (pt. 358) 258 at 269-270
[10]Per Rowland JCA (p. 133) para 10-15
[11]See also *Hale v. Jennings Bros* (1938) 1 ALL ER, 579 at 582 &584.' per Akintan JCA (139) para. 20-25
[12]Per Lord Wright in *Lochgelly v Iron Coal Co. V. M. Mullan* (1934) AC pl at 25
[13]Uzodike, E.N.U. 'Tort Law in Oil Industry' in *Essay in Honour of Judge Elias* (Omotola ed.) 1987 237 (1974) 2 R.S.L.R
[14] (1974) 6.S.C. pl19
[15] Suit No UHC/48/73, judgment of the Ughelli High Court delivered on November 12, 1974 (unreported) (1972) 4.S.C. l23
[16]The fact speaks for themselves, Kodilinye, G., *Nigeria Law of Torts* (London, Sweet & Maxwell, 1982) 47
[17]E.O Akpezi,., 'Compensation and Liability for Oil Pollution in Nigeria: Need for a Positive Approach' (1985) 3 J.P.P.P.L. 4
[18]Ibid.
[19] Kodilinye, Op. Cit. 90

> right belonging to him as a member of the public, when it is a public nuisance or (b) his ownership or occupation of land or some easement, profit or other rights used or enjoyed in connection with land, when it is private.[20]

Public nuisance is basically a crime,[21] actionable by the attorney General. It is a tort actionable by an individual plaintiff only where he can show that the defendant conducts have caused him particular damage over and above that suffered by the general public. In *Amos & Ors v. Shell B.P. Nigeria Limited,*[22] the plaintiff had claimed that the defendant by constructing a dam across their creek should be held liable in negligence. This is because the construction of the dam had resulted in flooding upstream causing severe damage to farmland and crops while downstream was experiencing a drought. The court held that since the creek was a public waterway the action by the defendant amounted to a public nuisance. Therefore since only the attorney general can bring an action for a public nuisance, the action of the plaintiff must show that the he has suffered damage which is different in kind, not merely in degree, from that suffered by the general public.[23] But the better view is that it is sufficient for the plaintiff to show that he suffered damage which is appreciably greater in degree than any suffered by the general public.[24] It seems most acts of nuisance committed by oil companies are public nuisance. But the scope of remedy is highly limited; it is difficult to succeed in an action in nuisance in oil pollution cases[25]. In Nigeria where the same person doubles as the attorney general and minister of justice it is difficult for that person to bring an action against the national oil company or the subsidiaries of the multinational oil companies because the federal government of Nigeria has majority equity shares in the subsidiaries of most of the multinational oil companies operating in Nigeria.

3. The Rule in *Rylands v Fletcher*

The rule in *Rylands v Fletcher*[26]is one of the common law remedies which have been widely acclaimed as a rule of strict liability and providing new remedies where none would otherwise have existed[27]. The rule which evolved from the case of *Rylands v Fletcher* itself was stated by Blackburn j as follows: "A person who for his own purpose brings on his land and Collect and keeps there, anything likely to do mischief of it escape must keep it in at his own peril and if he fails to do so, he is prima facie liable for all the damage which is the natural consequences of its escape" Oil was held to be capable of constituting such a dangerous matter in *Machine Umudje v Shell B.P. Petroleum Development Company of Nigeria limited.*[28] In this case the plaintiff who owned land adjacent to the area of exploration complained (a) that, in the course of road building the defendants had blocked and diverted a natural stream, thus interfering seriously with the plaintiff fishing rights and (b) that the defendant had accumulated oil waste on land under their control and that this oil had escaped onto the plaintiff land and caused damage there. As regards the first complaint, the supreme court that under the rule in *Rylands v Fletcher* it is now generally accepted that a person who diverts a natural stream or cause same to become blocked and in this way diverts its natural course does so at his peril, and is liable for any damage caused by the failure of his works to contain the diverted stream although there was no negligence on his part.[29] The court, however, held that in the present case the defendant were not liable because their blocking of the stream had not caused flooding of plaintiffs land but merely starvation of water and fish; there was, in other words, no escape of water from the defendant land to that of the plaintiff. With regard to the other complaint the defendant was held liable under the rule, since there was clear proof that crude oil waste, which they had accumulated in a pit on land under their control, had escaped onto the plaintiffs' land where it had polluted certain ponds and killed the fishes therein. An essential requirement of the rule is that there must be a non-natural user of the land by the occupier. In *Edhemowe v Shell B.P petroleum Development Company of Nigeria Limited,*[30] the court held the defendant liable for damage caused to the plaintiff fish ponds by the oil which escaped from the defendant waste pit holding that the accumulation of crude oil in a waste pit was non-natural user of land.[31] However, the court has accepted statutory authority as a

[20]Clark and Lindsell on Torts (14th ed.) Article 1391
[21]Criminal Code Cap C38 L.F.N. 2004 section 23
[22]1997) 4 E.C.S.L.R. 86
[23]*Attorney General v P.Y.A. Quarries Ltd* (1975) all ER p. 894 per Lord Denning at 908
[24]Street on torts (5th ed.) 1972 293
[25] Ibid
[26] (1866) LR, EX. P265
[27]Liability in the law of tort usually arises as a result of some wrongful or negligent act on the part of the defendant. Strict liability on the other hand connotes a situation where the defendant would be liable whether or not he was at fault and the fact that he exercised due in the circumstance will not exonerate him.
[28] (1975) 9-11 S.C. p155
[29]Ibid. l59 per Idigbe J.S.C
[30]Suit No UHC/12/70 Judgment of the Ughelli High Court (Unreported) Delivered on January 29, 1971
[31]Other cases where the rule was accepted by the court as the basis for their decisions include Otuku v shell B.P petroleum development company of Nigeria ltd, suit no BHC/2/83, judgment of the bori high court, (unreported) delivered on January 15, 1985; Okoro v Shell B.P Petroleum Development company of Nigeria ltd. Suit no W/2/21/77, Judgment of the Warri High Court (Unreported) Delivered on November 27, 1972.

complete defence to claim brought under the rule.[32] Some doubt have been expressed in some quarter on the appropriateness of applying the rule in *Rylands v Fletcher* to oil operations in Nigeria in view of the fact that oil production being the bedrock of the country revenue could not be regarded as non-natural user of land.[33]

It has been submitted[34] and rightly one thinks, that the utilization of the rule might be defended as an effort by the Nigerian court to regulate oil pollution and provide relief to victims in the absence of any other basis for relief. Environmental injuries are often of long-lasting effect. In recent times, there has been a remarkable shift from the long-established common law concept of liability founded on the fault of the defendant, especially in ultra-hazardous activities like petroleum exploration and production, to that founded on absolute liability principle. This is the approach of the Indian Supreme Court in the case of *MC Mehte v. Union of India*[35].In this case, on an application for compensation following a leak of hazardous gas from a factory in Delhi owned by the Siram food and fertilizer company, the court moved from the strict liability principle as propounded in *Rylands v. Fletcher* into absolute liability which is stated was not subjected to any exceptions which operate in the area of the principle of strict liability. In a potentially hazardous industry like the petroleum industry where the standard of operation in Nigeria is not comparable to international best practices, it is necessary that the court in Nigeria continue to make use of the rule in R*ylands v. Fletcher* and gradually move to the absolute liability principle.

4. Compensation for contamination

The law of general obligations [tort law] applies of course, to environmental contamination caused by businesses. If a business's use of property [i.e. to manufacture a product or provide a service] causes contamination and the contamination result in personal injury or property damage to others, then the business must pay compensation for the personal injury or property damage.

5. Potential Strict liability

It is important to note that businesses causing environmental pollution can be legally liable for the resulting personal injury and property damage even if those businesses do not intend to cause the pollution, injury or damage. Businesses can certainly be legally liable for pollution if they could have known, and in fact knew, that their operation will cause pollution, injury or damage. The business can be legally liable because it breached a general obligation with its reckless attitude toward the risk of pollution. Business can also be legally liable if they have known, but in fact they don't know, about the risk of pollution, injury or damage. [the business can be legally liable because it breached a general obligation with its negligent attitude toward the risk of pollution] in fact, business can be legally liable even if they could not have known, and therefore certainly did not know, that their operation would cause pollution, injury or damage. Legal liability in such circumstances is referred to as strict liability. Personal injury and property damage resulting from air, water, and soil pollution are referred to as toxic torts. Toxic torts are often referred to as mass torts because a single source of environmental contamination often causes mass injury and damage, i.e. injury and damage to many persons and their property. In the United States, mass torts are often handled as class actions' in court systems. A Class action is a lawsuit in which many plaintiffs, referred to as a class' bring a single case against one [or a few] defendant[s]. Plaintiffs typically prefer class actions because class actions facilitate legal claims. Class actions are favored by court because they expedite trials. For the same reasons, class actions are disfavored by defendants.

6. Punitive damages

Business operation can be very profitable even if the business pays full compensation for all of the injuries or damages resulting from the operation. In such circumstance, plaintiffs often request and court award punitive damages, i.e., an additional monetary award in an amount sufficient to discourage the harmful practice. In the United States, plaintiffs in mass tort cases usually request- and court often award – significant punitive damages because, in the absence of punitive damages, business operation which contaminate the environment are often very profitable even if the business pay full compensation for all the injuries or damages actually resulting from environmental contamination. Thus, significant punitive damages are necessary to deter businesses.

7. An Inadequate Solution to Pollution?

Even with the ability to bring class actions to recover punitive damages, potentials plaintiffs consider judicial remedies to be a burdensome response to environmental pollution. For example, the burden of proving all or most of the elements of their claims (i.e., pollution illness, damage and causation) falls on the plaintiffs even if plaintiffs are eventually able to prove their cases. Trials are typically very long, very expensive and very emotional for the alleged victims of pollution. Potential plaintiffs also often consider judicial remedies to be unreliable responses to environmental pollution. First, it is sometime difficulty to identify pollution. Sometimes pollution is identifiable

[32] *Ikpede v Shell B.P Petroleum Development Company of Nigeria ltd*. (1973) M.W.S.J. 6

[33]Uzobike, E.NU. op. cit. 238; Omorogbe Y., 'regulation of the oil industry pollution in Nigeria' in new frontiers in law (Epiphany Azinge ed. 1991) l47 at 155

[34] Ekpu, Op. cit. 92

[35]Ibid

only after several years of gradual accumulation. Second, it is frequently difficult to detect illness and property damage, especially the sort of illness and property damage frequently manifest themselves only after years of exposure. Third, it also difficult to prove that an illness or property damages resulted from exposure to specifically identified pollution. Fourth. The payment of damages awarded by a court is usually is usually delayed as defendant appeal legal issues to a higher court. As a result, even though the damage awarded can be significant, their payment to the plaintiffs is often delayed for the considerable periods of time. Finally, potential plaintiffs and many other agree that judicial remedies are an inadequate response to environmental pollution; judicial remedies are inadequate because monetary damages, even punitive damages, are insufficient to compensate for the death of a family member or the loss of a good health. In addition, in the absence of government regulation, the payment of compensation for the harm to certain individuals does not entail either:

a) an obligation to eliminate the cause of the harm [i.e. the obligation to remediate the pollution]; or
b) An obligation to pay for future harm to those same individuals or for past harm to other individuals, even if the harm results from the same existing or continuing pollution.

Moreover, judicial remedies are not available for the deleterious effect of environmental pollution other than personal injury and property damages. The air, rivers and oceans and most lakes are not anyone's personal property. Accordingly, judicial remedies for breaches of general obligations are not available for contamination of those natural resources. In other word in the absence of government regulation, individual and businesses are free to contaminate the rivers, air and oceans and most lakes with impunity unless and until the contamination causes injury [i.e., an illness] to other persons or damages to their personal property.

8. The Polluter Pays

Whether government regulation focuses on remediating or preventing, the general scheme for environmental regulation is that the polluter pays for pollution. If the pollution has already occurred, then the polluters pay for the remediation, i.e., for cleaning up the pollution, the polluter pays for the remediation either:

a) by paying the cost of the clean up
b) By paying a fine; or
c) Very often, paying both costs and a fine.

In addition, the polluters can be subject to judicial remedies requiring monetary compensation for personal injury and property damage resulting from pollution. If the pollution has not yet occurred but is the inevitable consequences of an industries or agricultural operation, then the polluters' pays for preventing the pollution. The potential polluter pays by designing, integrating and installing the proper equipment and procedures voluntarily, then the polluters will be subject to fines for the pollution above regulatory tolerance while retaining the obligation to install the necessary procedures and equipment. In addition, polluters will be responsible for the remediation under separate regulation and, as with remediation, subject judicial remedies requiring monetary compensation for personal injury and property damages caused by their pollution.

9. Remediation

This is where technical methods are involved in cleaning up accumulated contamination. Since soil contamination is usually more persistent' than water or air contamination – i.e. soil is the environmental element where pollution lingers and accumulates most easily – most remediation deals with cleaning up soil contamination. Pollution some time accumulate in standing bodies of water, requiring remediation, but air and water pollution are addressed primarily with preventive measures, as discuss below. Viewed from a technical perspective, soil is most often remediated through removal and incineration. All three common soil remediation measures typically involve digging up the contaminated soil. With 'removal' remediation techniques, the soil is taken to a remote location, where it is isolated so as to prevent all future harm through migration to air, water or soil or through ingestion by animals or humans. Incineration typically involves exposing contaminated soil to a high temperature. Through incineration, the contamination is boiled [or evaporated] out of the soil and capture for safe disposal –usually through the use of cooling towers and tanks. Incineration sometimes also alters the chemical formulation of contamination, rendering harmless.

10. The Green Field Standard

An important issues regarding remediation is regulatory tolerance', i.e., the level of residual contamination acceptable to environmental regulators – government officials – after soil and water have been remediated. Some national and locals' regulators take the position that polluted soil must be remediated to its initial, pristine state, i.e. As if the pollution has never occurred. This position is referred to as green field standard. Needless to say, the green field standard is very expensive. In fact, the green field standard is very expensive that it is often inhibits the sale and continuing use of land which have been use only once in a polluting operation, either industrial or agricultural. The green field standard often impedes the sales and continuing use of such land because a buyer is not willing to purchase land subject to such expensive regulatory burden. Similarly, the seller is not willing to

incur the high cost of complying with green field standards because the sellers will not have been able to recover the high compliance costs from buyers.

11. The Brown Field Standard

As a result of a green field standard, land use only once for a polluting industries or agricultural purpose often lies idle, while ever increasing amounts of new land, previously unused and therefore unpolluted, are applied to polluting uses. In responses to the perceived waste from the single use of polluted facilities, regulators have developed a 'brown field' standard for soil remediation. Generally, under the brown field standard, land must be remediated only to the standard required by the new buyer for its continue use. Frequently, such a standard requires no remediation. Under the brown field standard, regulators focus shifts to preventing humans and animals from ingestion existing pollution and to prevent migration of existing pollution to neighbouring areas.

12. Who is supposed to know about existing contamination?

Another important issues regarding remediation obligation of owner or user of real property to know about – i.e., to test for existing environmental pollution and, if so, to remediate the know contamination.

Under current regulatory standards owners and occupiers sometimes have an obligation to disclose and remediate existing contamination, of which they are aware at the same time, owners and occupiers of real property generally do not have an obligation to know about - i.e., to test for existing environmental pollution notwithstanding these rules, real estate buyers generally insist on having the seller-owner conduct such tests as a condition precedent to their purchase of real estate.

13. Who is supposed to pay for remediation?

Another important issues regarding remediation is the identification of the business or individuals required to pay for remediation of past pollution. Of course if a certain polluting facility has been owned and operated by a single business or individuals during it entire operation, then that individual is responsible for remediation of the pollution. It is sometime the case, however, that one business or individual owners the real estate where a polluting facility is located while another business or individual operates the facility itself. It is even more common that a single polluting facility has been owned and operated by a series of businesses or individuals. In this case, regulators are uncertain about the identity of the person actually causing contamination and therefore arguably responsible for remediation. Regulatory regimes often revolve the uncertainty by imposing joint responsibility on the current owner, the current operator, and on each of the past owner and operators. Each of them is required to pay for the remediation demanding contribution from the other in a lawsuit.

14. Is it an adequate solution to pollution?

Remediating past solution has significant technical disadvantage to preventing future pollution. First, remediation techniques differ dramatically from prevention techniques and are often less effective. [announce of prevention equals a pound of cure] second, continuing water and air pollution usually manifest themselves after a significant delay in time, in some form of soil pollution or public or public health problems – usually over a relative board geographic area and sometime at a considerable distance from the polluting facilities. Remediation has economic disadvantages to prevention first, in addition to being technically more difficult, remediation is frequently more expensive. Second, only regulation which prevent pollution before it occurs enable businesses to shift the cost for pollution to consumers by increasing price for goods and services to cover the cost of preventing measures. Third, recovering the cost of remediation, from a polluting business poses difficulties, in part because businesses typically do not have sinking funds for possible remediation. As a result, revenue from polluting operations have usually been applied to other uses before remediation is required.

15. Preventing pollution

Based on the foregoing discussion, it appears that the dealing with environmental issues through prevention is technically easier and less expensive than dealing with such issues through remediation. In any event, remediation of past pollution does not obviate the need for prevention of future pollution, but prevention of future pollution can eliminate the need for remediation. As a result, potential pollution identified before commercialization of a technology is typically addressed, within the limit of technical feasibility through preventive measures. Pollution occurs identified after such commercialization is addressed with a combination of remediation [for past pollution] and prevention [for future pollution]. Unlike remediation, which focuses primarily on soil contamination, preventing measure involve keeping continuing contamination from entering all three environmental elements, i.e., air water and soil. Since the pollution material [e.g. a toxic substance] is usually waste incidental to an industrial or agricultural operation from a technical perspective, preventing measures typically involve:

a) design of a planned operation to reduce inputs and outputs;
b) Intervention in an existing operation to reduce polluting input and outputs;
c) Capture and contaminant for planned or existing operation; or
d) Separate efforts to recover the polluting material.

Of course, these techniques are not all mutually exclusive. Some can have applied to a single planned or existing operation.

16. Regulatory Tolerance

As with remediation green field or brown field, tolerance is an important issue for government regulation intended to prevent environmental pollution. These are various approaches to establish the tolerance within which pollution is acceptable under government regulation. First, there is the approach of set outcomes. With this approach, government regulator establishes a maximum quantity of various pollution materials which can be emitted into the environment within a certain area and accordingly to certain operations within that area. The quantities tend to be established as a rate e.g. absolute amount per day, weeks or month. The tolerance takes the form of permits. i.e., license to pollute up to a set maximum issued by environmental regulator and enforced, for example, through monitors installed at industrial facilities. Sometimes, the licenses are transferable. In such cases, a market for licenses develops as businesses operating well within the limits of their licenses sell unused tolerances to businesses wishing to operate beyond the limits of their license. Second, there is the approach of continuous improvement. Continuous improvement is, in effect, variation of set outcomes. With the approach of continuous improvement, environmental regulators both prescribe a set outcome for current tolerance and set a higher standard i.e. a stricter tolerance for specific time in the future. As a first step in a continuous improvement regime, environmental regulators can set an outcome [stricter than current industry practice or available technology for a specific deadline in the future. Third, there is the approach of best available technology or BAT'. With this approach, government environmental regulators prescribe the specific preventive technology they consider be the best e.g. bags or scrubbers to capture particulate pollution of BAT, Regulator required that businesses must achieve the results of a specific BAT, but do not required that businesses use the specific BAT. In other words, businesses have complete flexibility as to how to achieve to BAT results.' Such a variation of the BAT approach is an incentive to business to develop less expensive or more efficient techniques of preventing environmental pollution.

17. Conclusion

A healthy environment is vital to the quality of life of human being. This has made it imperative to safe guard the human environment for human interest. Environmental right is one of the tools used to address environmental problems at the global, regional and national levels. It has been posited that environmental rights could be employed to restore the balance between man's activities and the preservation of the environment for future generations. Environmental harm and the abuse of human rights often go together. An unhealthy and unfavourable environment is a violation of the right to life and human dignity every human being is entitled to a healthy and productive life in harmony with nature. A healthy and ecologically balanced environment is a fundamental right so as to enhance environmental governance in Nigeria. By so doing the importance of the issues of environmental governance will be elevated in Nigeria and Nigerian will be assured of a healthy and ecologically balanced environment. Procedural rights are indispensable to the implementation of environmental rights for the attainment of sustainable environmental governance. These procedural rights should be given effect to under the Nigerian laws in order to enhance the enforcement of environmental tights in Nigeria. Provision should therefore be made for an environmental rights act which has incorporate in it "procedural rights" and such an act should be given effect to under the Nigerian constitution. Such procedural rights provide civil society with the mechanism for learning about actions that may affect them, participate in governmental decision making processes and holding the government accountable for its action inactions. They also serve to enable civil society to be bond together to protect the environment through the exercise of those procedural rights