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# WASTE MANAGEMENT AND INTERNATIONAL ENVIRONMENTAL LAW: EMERGING TRENDS AND IMPLICATION IN NIGERIA

AKINBOLA, B. R.

## ABSTRACT

*A realization of the necessity for resource sustainability, minimization of waste generation, waste conversion, recycling, reuse and proper disposal which will lead to a globally healthy environment, has informed this work. This studies intends to examine some emerging trends, in international environmental law, especially with respect to waste minimization, recycling, recovery, and reuse, and the need for sustainable development in the context of a globalizing world. It will consist of an introduction, an examination of global emphasis on sustainable development, globalization of environmental law, legal international environmental regulation, national domestication of environmental regulations, the nexus between the trends identified, including a global emphasis on sustainable development, and the waste conversion to wealth drive all over the world. The article ends with some recommendations and a conclusion.*

**Key Words:** *International Law, Emerging, Waste, Management, Resource sustainability, Waste Reuse, Recycling and Disposal.*

## INTRODUCTION

An extensive array of treaties, conventions and protocols have been signed by many nations of the world in realization that if nothing is done to protect the earth, human existence on it will become impossible in the years to come. International environmental law consists primarily of these Treaties, Conventions, Protocols, and other international legal instruments. Nigeria is a signatory to many of these regulatory instruments both at global and regional levels in keeping with a popular adage to the effect that a tree cannot make a forest and no man is an island. In the same spirit, no nation of the world is self-sufficient or can be complete without any reference to others. The international effect of the Tsunami disaster

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that struck in Asia in December 2004, sweeping away many properties worth million of dollars, killing hundreds of thousands of people, displacing others and disrupting economic activities in that region while affecting prices of some goods around the world, is a pointer to the need for concerted international efforts at waste management, environmental preservation and sustainability in the use of resources. This article examines some trends in international environmental law and the implications for Nigeria. To do this, key terms are clarified including waste, management and international environmental law. Five major trends are considered include the trend to emphasize sustainable development, environmental globalization of wastes management, increased public concern with social and health impacts of industrialization and lastly, attempts at progressive unification of waste management and environmental regulations. The implications of these trends for environmental law in Nigeria are examined and the article ends with some recommendations and conclusion.

Waste generation is a natural consequence of human, ecological and industrial processes. It increases proportionately with consumption, scientific and technological activities. Waste has been defined as: "Any substances, which constitutes a scrap material, an effluent or other unwanted surplus substance arising from the application of any process." Anything else which is so designated, is also waste<sup>1</sup>. It maybe better appreciated when contrasted with wealth which has been defined as a large amount of money property or the state of being rich<sup>2</sup>. In other words, wealth means assets. In this work, wealth refers to both tangible and intangible assets as opposed to unwanted substances called wastes. Most wastes however have the potential to become tangible assets which are capable of being applied for useful purposes through recycling, recovery, conversion and reuse. Wastes also may become intangible wealth in the context of this work, by creating a healthy environment through proper management of wastes which would otherwise have been detrimental to the health of the environment (especially human beings), if not properly managed. Waste therefore has the potential to be either a liability or an asset, depending on how it is managed. This underscores the importance of waste management in environmental law.

Wastes can be classified into domestic, industrial, liquid, solid, gaseous or air borne, organic, inorganic, hazardous and non-hazardous wastes depending on their nature and effects. In Nigeria, the Environmental Impact Assessment Act (EIAA) 1992 has classified wastes as follows<sup>3</sup>:

**(a) Toxic and Hazardous Waste**

- (i) Construction of incineration plant.
- (ii) Construction of recovery plant (off-site)
- (iii) Construction of waste water treatment plant (off-site)

- (iv) Construction of secure landfill facility.
- (v) Construction of storage facility (off-site)

**(b) Municipal Solid Waste**

- (i) Construction of incineration plant.
- (ii) Construction of composting plant.
- (iii) Construction of recovery/recycling plant.
- (iv) Construction of municipal solid waste landfill facility.

Municipal Sewage is the construction of waste water treatment plant and Construction of marine outfall.

Waste management is the collection, transport, processing (waste treatment), recycling or disposal of waste materials, usually ones produced by human activity, in an effort to reduce their effect on human health or local aesthetics or amenity<sup>4</sup>. A sub-focus in recent decades has been to reduce waste materials' effect on the natural world and the environment and to recover resources from them. Waste management can involve solid, liquid or gaseous substances with different methods and fields of expertise for each<sup>5</sup>. Waste management practices differ for developed and developing nations, for urban and rural areas, and for residential, industrial, and commercial producers.

Waste management for non-hazardous residential and institutional wastes in metropolitan areas is usually the responsibility of local government authorities, while management for non-hazardous commercial and industrial waste is usually the responsibility of the generator<sup>6</sup>. The supervisory role of the Federal Government in regulating the management of toxic and hazardous waste substances cannot be overemphasized, especially in a developing country like Nigeria. The absence of this important role until recently in Nigeria has had serious consequences. It was responsible for the experience of Nigeria when in 1988, when an Italian company dumped a large amount of toxic wastes in the then Bendel State, which resulted in much hardship to the villagers<sup>7</sup>. Problems associated with toxic wastes include outbreak of strange diseases or food poisoning<sup>8</sup>.

There are a number of concepts about waste management, which vary in their usage between countries or regions. This has been ordered in a hierarchical manner and called the waste hierarchy. It orders waste management strategies as follows: (i) waste prevention; (ii) waste minimization; (c) waste reuse; (iv) waste recycling; (v) energy recovery and (vi) waste Disposal<sup>9</sup>.

***INTERNATIONAL ENVIRONMENTAL LAW***

International law has been described as a system of jurisprudence that, for the most part has evolved out of the experience and the necessities of situations that have arisen from time to time. It has been developed with the progress of

civilization and with the increasing realization by nations that their relations inter se, if not their existence, must be governed by, and depend upon, rules of law which are fairly certain and generally reasonable<sup>10</sup>. Sources of international law include international conventions; customs general principles of law recognized by civilized nations; judicial decisions; and teachings of the most publicists of the various nations as subsidiary means for the determinations of rules of law<sup>11</sup>. Countries exist within the context of the environment. The term environment does not have a universally accepted definition. Major treaties, declarations, code of conducts, legal instruments and statutes do not contain definitions of the term<sup>12</sup>. In this context, it comprises of water, land, air and everything in nature.

The first three components of the environment link the entire global community together. Only land maybe demarcated but water and air cannot be strictly held within the confines or boundaries of different countries. Water, air and the chemical components of land circulate without restriction across the boundaries of states and the effect of processes that occur in any country is circulated to others naturally. Water, land and air also happen to be the media for environmental pollution. This informs the collaboration of nations in optimizing natural resources which are neither equally distributed nor identically available in all laces. It also necessitates international laws to govern the relationships of different nations generally. International laws that govern and protect the environment therefore, are imperative for safeguarding the health of the entire human race within the global community. International environmental laws not only to prevent conflict over usage, but also ensure sustainability in usage of the available resources which are often scarce and help to preserve rare species from extinction.

There are many emerging trends in international environmental law and waste management. The discussion in this article is by no means an exhaustive one. Five core trends are examined here for constraint of space. They are trends 1 - 5.

#### **TREND I:**

**Global Emphasis on Sustainable Development:** Sustainable Development, according to the United Nations means "development that meets the needs of the present without compromising the ability of future generations to meet their own needs<sup>13</sup>. Sustainable development comprises of four elements, essentially: (i) the principle of intergenerational equity; (ii) the principle of sustainable use; (iii) the principle of equitable use or intra-generational equity; and (iv) the principle of integration<sup>14</sup>.

Intergenerational equity advocates the necessity to preserve natural resources for the benefit of future generations. The implication of this is that while



exploiting resources for meeting the needs of the present generation, the need of generations yet unborn must be borne in mind. Perpetuity of the human race also requires sustainability of natural resources. Secondly, sustainable use implies that natural resources should be used or exploited in a "sustainable, prudent, rational, wise or appropriate manner." Thirdly, intra-generational equity advocates that the use by one state must take into account, the needs of other states. The fourth principle of integration implies that economic development and environmental protection are integrally related and interdependent, and that both are necessary and desirable to maintain and improve the quality of human life<sup>15</sup>. In summary, the primary focus is on effective management of all environmental aspects of a company's activities<sup>16</sup>.

Balancing or combining economic development with environmental protection is the core aim of sustainable development. According to a consultation paper<sup>17</sup>, this is possible by;

*"... Energy efficient measures, improved technology and techniques of management, better product design and marketing, waste minimization, environmentally sensitive farming practices, sound decision in land use planning, improved transport efficiency, informed choices by consumers and changes in individual lifestyle"*<sup>18</sup>

The Rio Conference yielded at least two major achievements namely the constitution of the United Nations Environmental Programme (UNEP) and the Declaration of principles which were to act as guide to the International community for the preservation and enhancement of the human environment. These represent landmarks in environmental regulation all over the world. According to principle 21 of the Stockholm conference Declaration, all states are responsible to ensure that the activities within their jurisdiction and control, do not cause damage to the environment of other states or areas beyond the limits of national jurisdiction. This makes indiscriminate dumping of waste in solid, liquid forms or flaring of gaseous fumes into the air in such a manner that pollutes the atmosphere of another country, illegal<sup>19</sup>. Waste generation, management and disposal became regulated to an extent.

Another important milestone in the global recognition of the need for sustainable development is the Rio de Janeiro United Nations Conference on the Environment and Development Agenda 21 with the Declaration there from, often referred to as the 'Rio Earth Conference Declaration. The Rio Declaration contains 27 principles, which contain references, inter alia, to the responsibilities of states in view of their different contributions to global environmental degradation and

the need to reduce and eliminate unsustainable patterns of production and consumption. Rio Declaration also serves as a strong disapproval of unsustainable use or wastage of resources by any member of the international community in its quest for rapid development. Man is seen as central to the relationship he has with other living creatures and the environment, which he holds in trust. The implication is to impose on man, the responsibility to ensure that his activities do not cause irreparable harm to the environment, which is held in trust, so to speak for both present and future generations<sup>20</sup>. Law is certainly a viable tool in ensuring that man is a good trustee of the environment. It does this in two major ways, which are to provide guidelines for man's conduct and usage of environmental resources and secondly, to sanction man when and where he defaults in keeping this trust of preserving the environment from destruction.

## TREND II

**Environmental Globalization and Waste Management:** Globalization maybe described as the process of removal of territorial barriers of nations and dealing with issues on the basis of a unitary human society. It has been variously described, detail of which is outside the scope of this work. On the other hand, environmental globalization is the tendency to de-emphasize country-based environment to a global homogenous approach to these issues<sup>21</sup>. International environmental law has grown rapidly in significance, with the emergence of global environmental threats, the most important of which is said to be climatic change.

The globalization of environmental law is important for two main reasons: (i) It focuses attention on the existence of global problems and the need for international solutions to those problems; and (ii) It has pioneered and developed important legal and policy principles (for example sustainable development and the precautionary principles), which are so influential that they have been incorporated into the national environmental law and policy of individual nation states and regional communities of states such as the European community.<sup>22</sup> For example, following the establishment of the Committee on Sustainable Development (CSD) at the global level to oversee the implementation of Agenda 21, over one hundred countries world wide have established their own national committees on sustainable development with a view to implementing the policies of Agenda 21 at national levels<sup>23</sup>. The Montreal Protocol on substances that Deplete the Ozone layer is an innovative attempt to ensure the measures provided for in the protocol are complied with<sup>24</sup>.

As international environmental law is being globalized, there is also the regionalization of same. Both globalization and regionalization of environmental

law are moving towards some degree of uniformity of regional and global standards and rules respectively. To the extent that they both attempt to address issues of regional and global concerns, in a harmonious and integrated manner, the world environment will be better enhanced than when reliance is placed only on national and municipal environmental control and regulation<sup>25</sup>.

Nevertheless, there can be no absolute guarantee of this for the fact that, regionalization and globalization are not necessarily moving on the same parallel direction, let alone the same speed. Firstly, regionalization, unlike globalization, tends to breed higher environmental standards because of the higher environmental denominator amongst members. In the view of Ibibia Worika,<sup>26</sup> strict environmental policy and laws in a particular region could drive investors to other regions with lesser environmental standards, provided those other regions are equally prospective as the former regions. This is particularly true of waste generation and disposal cost. Countries with stiff and rigidly enforced laws which compel waste minimization, recovery, recycle and reuse will tend to attract less of investors who are not environmentally conscious of the need for sustainability. Such consequences can hardly solve global problems as they would rather concentrate environmental problems in certain parts of the globe.

Also, differing investment assimilative capacities, political failures and externalities could militate against global or regional uniformity of standards and regulations<sup>27</sup>. The advantage of this is to attract more investors comparatively into Africa, than its more stringent counterparts, especially in the upstream petroleum investment sector, in the view of some economically minded analysts. However, this 'advantage' is at a highly exorbitant cost to the environment.

### TREND III

**Increased Public concern with Social and Health Environmental Impacts of Industrialization:** Environmental degradation and its attendant problems are now a global concern both in the developed and developing nations. Rapid technological, scientific and industrial developments have largely increased the rate of waste generation and the attendant consequences. Susan Wolf *et al.*<sup>28</sup> put it succinctly in this way, while writing on the environment in Great Britain: "The public is assailed on all sides by both local and global threats including: Climate change, acid rain, destruction of habitat, resource depletion, industrial pollution, and nuclear waste disposal. At the same time, public confidence in science and scientific expertise has been severely dented by a string of environmental controversies which have been linked with adverse health impacts: BSE, genetically modified crops, Ozone depletion and traffic related asthmas.

Controversies over the siting of waste incinerators, electricity power lines, low-level nuclear waste storage facilities, and similar unwanted developments are reported daily in the media. Although these words have been used to describe the environment in Britain, they aptly describe the global environmental condition of the 21st century. In the realization of the negative effects of indiscriminate generation of wastes through production and technological activities, other countries like Japan, China, Britain and the United States of America have enacted waste recycling laws. This is also in response to public outcry. Except CFC, green house gases are natural and the green house effect is a natural phenomenon. Without it, the earth will be about 60° cooler than it is today, and life, as we know it will be impossible<sup>29</sup>.

Notwithstanding the foregoing however, human beings have heightened the level of green house effect beyond healthy limits by burning fossil fuels and land use, particularly deforestation, which contribute to the accumulation of green house gases in the atmosphere. Chlorofluorocarbons, which were not present in the atmosphere at all, prior to the industrial revolution, have warning effects ranging from 3,000 to 13,000 times that of carbon dioxide and persist for up to 400 years. Predicted effects of global warming include:

*"Melting of the polar ice caps, flooding of coastlines, severe storms, changes in precipitation patterns and widespread changes in ecological balance. Infections diseases may increase due to an expansion of habitat for disease vectors like mosquitoes. Many species may be unable to adapt to such swift changes in the climate and may become extinct."*<sup>30</sup>

The foregoing necessitated national and international reactions. As if in response to these effects and anticipated effects, laws are now either already enacted or being advocated for the compulsory minimization of waste generation, recovery, recycling and reuse of waste in production processes in many countries.

#### **TREND IV**

##### **Unification of Waste Management and Environmental Regulation Standards:**

There is a deliberate global effort to unify the standards of control of the environment, with a view to possibly have a universally healthy world that is conducive to human life and health. Whether or not this is attainable, is a controversial matter in view of the fact that the level of industrial wastes and gaseous emissions appear to be greater with higher levels of technological and infrastructural development. It is generally believed that the developed nations are

the guiltiest of environmental pollution. The disposition of the United States of America (U.S.A) to the Kyoto Protocol which emerged from the UN conference held in December 1 - 11, 1997 in Kyoto Japan confirms this assertion. More than 170 nations, including the United States of America, the European Union, Canada and Japan, signed the treaty to reduce green house gas emission<sup>31</sup>. Key features of the treaty include emission targets, international emissions trading, and clean development mechanisms. The U.S.A. was a key player in the Kyoto Protocol, but interestingly, it has withdrawn from it on June 11, 2001 when President George Bush of the U.S.A remarked that instead of committing to the Kyoto Protocol standards, the U.S.A. will combat global warming in other ways. He listed development of energy efficient technology, market based incentives to encourage industries to reduce green house gas emissions on their own and conservation programmes that help sequester carbon in the soil, as actions the U.S.A would take<sup>32</sup>. This withdrawal of the U.S.A. has been attributed to its desire to protect its highly industrialized economy and to avoid sharp cut in its labour market. Whatever its arguments, the U.S.A has lent credence to the proposition that some governments put economic considerations before the health of the environment.

This is a wrong ordering of priorities that will bring long-term negative effects to the global community as a whole. In the United Kingdom (U.K.), in order to meet the target reduction in green house gases production, a levy has been imposed by the 2000 Finance Act, known as the "climate change levy"<sup>33</sup>. It aims at reducing energy consumption in order to reduce or lower the production of green house gases in the U.K.

Apart from the Kyoto Protocol, there are also the 1985 Vienna Convention for the Protection of the Ozone layer, the 1992 convention on Climate Change, the Basel convention on the control of Trans-boundary Movement of hazardous Waste and their Disposal 1989, the Bamako Convention for the trans-boundary movement of waste within Africa, which resulted from the dissatisfaction of developing countries with the Basel convention. Further to these, customary international law also provides some protection for the environment. The African charter on Human and Peoples' Rights has sections specifically addressing the need for a healthy environment. Indeed, the African charter on Human and peoples' right was the first international document to proclaim the right to a satisfactory environment as a human right to which all people are entitled.

## TREND V

Another key emerging trend of international environmental law and waste management is the domestication of provisions which are contained in international

instruments in the constitutions of various countries. These give constitutional basis for their domestication in national laws other than the constitution. The advantage of this includes the fact that enforcement of national laws is easier and more effective within national jurisdictions than at international law level perhaps because of procedural requirements. This is illustrated by the following constitutional provisions of some countries.

**Nigeria:** "The state shall protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria"<sup>34</sup>. It is notable that the Constitution of the Federal Republic of Nigeria (CFRN) 1999 is the first Nigerian constitution to specifically make provision for the protection of the environment and this is a notable improvement on past Nigerian Constitutions. However, locating the provision on the right to a healthy environment in chapter 2, section 20 of the 1999 CFRN, titled: Fundamental Objectives and Directive Principles of State Policy, weakens its ability to serve the purpose it was intended to serve. The provisions in the 2nd chapter of the constitution are said to be the non-justiciable parts of the constitution. The implication of this is that the state cannot be sued to court for defaulting to perform its obligations under the provision in section 20 which protects the environment.

It is hoped that future constitutions will not only make provisions to protect the environment, but will go further to make such laws justiciable and enforceable. It is highly commendable that through judicial activism however, Nigerians are already taking advantage of the right as shown in the case of *Jonah Gbemre & ors v. Shell Petroleum Development Company & ors*<sup>35</sup> where the Court of Appeal held in favour of the Plaintiff who sued for environmental pollution as a violation of human rights. The court found that the constitutionally guaranteed rights to life and dignity of the human person provided in the constitution<sup>36</sup> and reinforced by the African Charter<sup>37</sup>, inevitably includes the right to clean poison- free, pollution-free and healthy environment.

**Seychelles:** The state pledges itself to protect, preserve and improve the environment and natural resources, and it is the duty of every citizen to do likewise.<sup>38</sup>

**South Africa:** "Every Person shall have a right to an environment which is not detrimental to his or her health or well-being".<sup>39</sup>

**Tanzania:** "Natural resources will be preserved, developed and used for the benefits of all citizens and...everyone has the responsibility of conserving natural resources."<sup>40</sup>

**Algeria:** Stipulates in essence that every citizen has a duty to protect public property of others. Under article 17, public property encompasses the various components of the ecosystem.<sup>41</sup>

**Angola:** "All Citizens shall have the right to live in a healthy and unpolluted environment. The state shall take the requisite measures to protect the environment and natural species of flora and fauna throughout the natural territory and maintain ecological balance and acts that damage or directly or indirectly jeopardize conservation of the environment shall be punishable by Law"<sup>42</sup>. This constitutional provision obviously appears to be a long way ahead of the others most of which make no specific provision for sanctions against pollution of the environment. As far as the protection of the environment is concerned, the constitution of Angola deserves commendation in this respect. It has been noted however, that the constitutional provisions of different countries carry different weights, depending on the jurisdiction in question.

**Burkina Faso:** "The right to a healthy environment ...the protection, defence and promotion of the environment shall be the duty of all"<sup>43</sup>

**Chad:** One of the fundamental responsibilities of the state is "to preserve the environment and natural resources"<sup>44</sup>

**Congo:** "Every citizen shall have a right to healthy satisfactory and sustainable environment and shall have the duty to defend it. The state shall strive for the protection and conservation of the environment"<sup>45</sup>

**Equatorial Guinea:** The Constitution of Equatorial Guinea stipulates that the state recognizes the right to the protection of health.<sup>46</sup>

**Ethiopia:** "All persons have the right to a clean and healthy environment" and that 'All persons who have been displaced or whose livelihoods have been adversely affected as a result of state programmes have the right to commensurate monetary or alternative means of compensation, including relocation with adequate state assistance"<sup>47</sup>

**Mali:** "Every person has a right to a healthy environment. The protection and defence of the environment and the promotion of the quality of life are a duty for all and for the state"<sup>48</sup>.

**Mozambique:** "The state shall promote efforts and guarantee the ecological balance and the preservation of the environment for the betterment of the quality of the life of its citizens"<sup>49</sup>

**Namibia:** "The state shall maintain ecosystems, essential ecological processes and biological diversity, protection of the interests of present and future generations

and measures against dumping or recycling of foreign nuclear or toxic waste and other responsibilities of the state<sup>50</sup>. There are several common strings that run through all the highlighted country constitutional provisions. One of this is that the State has an obligation to protect the environment for the health and well being of its citizens. Another important similarity is that the citizens have the right to a healthy environment and the duty to also use the environment in a healthy and sustainable manner. If the provisions are properly enforced in every country, then the world will largely be a healthy place for all as the sum aggregate of the country environment will be healthy.

#### **Trend IV:**

**Resource Recovery:** A relatively recent idea in waste management has been to treat the waste material as a resource to be exploited, instead of simply a challenge to be managed and disposed of.<sup>51</sup> There are a number of different methods by which resources may be extracted from waste: the materials may be extracted and recycled, or the calorific content of the waste may be converted to electricity. The process of extracting resources or value from waste is variously referred to as secondary resource recovery, recycling, and other terms. The practice of treating waste materials as a resource is becoming more common, especially in metropolitan areas where space for new landfills is becoming more scarce. There is also a growing acknowledgement that simply disposing of waste materials is unsustainable in the long term, as there is a finite supply of most raw materials.<sup>52</sup>

#### **Implications of Environmental Trends for the Nigerian Environment:**

The identified trends in this paper are focused on generally advocating total prevention of wastes and the conversion of 'wastes to wealth' where prevention is not possible. The target, among other things is finding legal ways to generate resource out of waste products, which would otherwise constitute pollutants and a source of degradation to the environment. Nigeria as a sovereign country is a unit of the international community and by implication is subject to international laws to which it is a party. Thus, the international environmental law trends identified above have serious implications for the Nigerian environment. The implications will be examined briefly here.

**Global Emphasis on Sustainable Development:** Waste management projects are worthy investments of material and intellectual resources by all governments and international organizations. Funding should be made available at all levels to ensure that such projects are encouraged. It is also very important therefore, that different projects should apply resources in a sustainable manner by striving to observe the



four main principles of sustainable development as earlier stated, namely: (i) The principle of intergenerational equity; (ii) the principle of sustainable use; (iii) The principle of equitable use or intra-generational equity; and (iv) The principle of integration.

**Environmental Globalization:** Against the background of a non-existent Federal Statutory control of hazardous prior to 1988, the Federal Government has evolved a systematic legislative and administrative framework to ensure adequate and sound environmental regulatory mechanism. The first of this was the Harmful Waste (Special Criminal Provisions) Decree,<sup>53</sup> which prohibited all activities relating to the purchase, sale, importation, transit, transportation, deposit and storage of harmful wastes without lawful authority.<sup>54</sup> This was a bold and commendable step by Nigeria to deter the practice of using the country as a hazardous waste site by local and international waste handlers. While researches on converting waste to wealth by the different fields are going on, the intellectual and physical outputs must be nationally and globally publicized and made available to consumers. Developed countries have more advanced technologies and can help the developing countries in this. This is one way humanity at large can gain maximum benefits from the technological innovations for achieving sustainable development. Natural resources must be viewed from the perspective that they are a global heritage as against individual isolated ownership. Having a globalized perspective of natural resources will help to foster the desire to preserve nature in as healthy a state as possible through sustainable use.

**International Legal Environmental Regulations:** The International environmental laws (Conventions, Treaties and Protocols and other Instruments) to which Nigeria is a party, at global, regional and national levels are binding and must be observed and obeyed in the course of all research activities by all countries as appropriate. The research ethics committees which are authorised to certify compliance of research projects with ethical codes must insist on proper environmental impact assessment reporting which includes a statement on sustainability before the commencement of any research work. Any proposed research that does not show sustainability in the use of natural resources must be disallowed.

**Increased Public Concern with the Effects of Environmental Problems:** Before 1988, environmental law was unheard of in any faculty of law in Nigeria.<sup>55</sup> The Universities as citadels of research and learning owe it a duty to humanity, both to discover through research and to disseminate vital information to the public. The global community looks up to the Universities, research institutions and the

academic community generally for this. However, the academic community especially in the developing countries need be more active in providing the much needed leadership and thereby enable the maximization of the potential to achieve the same in all other sectors of human endeavour. Pursuant to the drastic and dramatic turn of events in the environmental awareness level of the country after the Koko Waste dump incidence in 1988, environmental Law was included

**National Legal Environmental Regulation:** The laws that regulate the environment in Nigeria must be adhered to by the waste to wealth project. The laws on waste management currently in Nigeria exist as piecemeal legislations scattered in different laws. Secondly, there is no doubt that there is a dearth of laws on waste management in Nigeria. Laws compelling waste minimization, recovery, recycling and conversion and proper disposal are necessary. The legal unit of the university and the Faculty of law units of the project may consider proposing a bill to the National Assembly, to advocate legislations in these areas of waste management.

**Resource Recovery:** This is still an uncommon practice in Nigeria in important sectors like the oil minning sector where gas flaring continues unabated all year round. The government has either not appreciated the dangers to health involved in this flaring of gas continuously or it does not consider it a priority for the country. Gas flaring is not only wasteful, it hazardous to health and an unsustainable use of natural resource of crude oil which happens to be the pillar of Nigeria's economy presently. It is therefore imperative for Nigeria to prioritize the conversion of gas that is currently flared, for the production of cooking gas. This will be a more environmentally friendly manner for the oil sector in Nigeria..

## CONCLUSION AND RECOMMENDATIONS

The need for sustainability in the use of natural resources cannot be overemphasized. This article has attempted to examine what waste means, what waste management entails, and how waste management can be put to advantage in preventing waste generation, minimizing it where prevention is not possible and utilizing the waste generated for other useful purposes rather than merely disposing or burning them. Different constitutional provisions have been highlighted to show that the need for maintaining a healthy environment is acknowledged by different countries in Africa. The level of enforcement of the environmental protection provisions is still far short of what is ideal. Waste management is proposed as a 'sine quo non' for achieving sustainable development which aims at meeting the needs of the present without jeopardizing the ability of the future generations to meet their own needs.

In every human endeavour, it is important to avoid the occurrence of waste totally as the most preferred waste management option. Where it is however not possible to prevent waste from occurring, recovery, recycling, and reuse must be considered before disposal or incineration in the management of wastes which are though sometimes less expensive but they are also the least environmentally healthy options. The last two options are always to be the last options in the management of wastes. It must also be recommended here, that whenever there is a conflict between environmental health and economic gains especially with respect to waste generation, recovery, recycling and reuse, governments at national and international levels as well as corporate bodies and individuals must make it a duty to prefer environmental protection and sustainability.

The policy thrust of most African governments is in favour of economic development as against environmental protection and sustainable development. This is not exclusive to Africa and it ought not to be so. Developing countries also need to give greater heed to environmental health while striving for technological advancement and development. Industrialized countries appear to be the worse violators of the environment. The United Nations has done much but still needs to do more in encouraging countries to cut down on emission of Green house gasses and other unhealthy uses of the environment. Though it may be more costly, wastes recycle, conversion, reuse and minimization are to be preferred to disposition and incineration. In order to achieve sustainability of natural resources especially in petroleum producing countries like Nigeria, waste prevention should be the goal in all exploitation of natural resources.

While virtually all African countries have some level of environmental protection provisions in their constitutions, the level of enforcement of such protection needs to be more effective. In Nigeria for instance, due to the fact that the provision is in the 2nd chapter, it is often regarded as non-justifiable and therefore individuals could not easily enforce their rights under that section of the constitution. Level of enforcement of laws that control waste management and empower individuals and local communities to sue for violation of waste management laws/regulations needs to be improved.

The importance of information dissemination in achieving a healthy pattern of waste management cannot be overemphasized. Governments should consider providing information to all manufacturers and the public at large on the importance of healthy waste management. This could be achieved through inclusion of environmental ethics in the curriculum of schools across all levels of educational training. Media publicity of the importance of sustainable development will also be a good way to build a culture of sustainability in the exploitation of natural resources and the management of wastes in an environmentally friendly manner, thus promoting the health of all.

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