Water Pollution Regulation in Nigeria: Law and Practice

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Abstract

Law on water pollution in Nigeria consists of both the common law and statutory provisions. In this research, efforts were made to examine the Law and practice relating to water pollution. The research adopted the doctrinal method wherein both primary and secondary sources were examined. In particular, the research examined the NESREA Act, 2007 as amended in 2018 and the National Environmental (Surface and Ground Water Quality Control) Regulations, 2011. It was found that in spite of the robust Legal Provisions, water pollution still persists in Nigeria. Among the challenges identified are lack of political will by the government to tackle the problems of water pollution, the weak institutional framework for the enforcement of water pollution legislations, non-challant attitude of the citizens towards environmental protection and absence of pragmatic public interest ligation to carter for the interest of the weak and poor but venerable population who cannot afford to initiate litigation to enforce water pollution legislations. To arrest the ugly situation, recommendations were made including recycling of water after treatment should be practiced to the maximum extent possible, the quantity of waste water discharge into the environment should be minimized, enactment of water pollution control Act to provide stiffer penalties for water pollution offenders, and making the enforcement Agency more effective and efficient in carrying out its responsibilities, etc.

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1. INTRODUCTION

The law and science relating to water is vast. This is perhaps unsurprising given that water is critical to life and water cover over 70% of the earth's surface. Fresh water accounts for only 2.7% of the earth's water and a large proportion of this limited quantity is frozen in glacial ice caps at the two poles and on high mountains. At the same time the demand for water has risen with increasing human population and economic activity. Accessibility to plentiful water resources in Nigeria is widespread as water is seen as a primary measure used in the development of all life aspects like industry, agriculture and human consumption. These water assets in Nigeria can be classified into two categories, namely fresh surface water and groundwater. Fresh surface water constitutes approximately 80% of the country's water, and includes ocean provedance, evenly distributed rivers and streams, lakes, water basins and wetlands. Annual rainfall varies along the latitude of the country from around 250mm in the extreme north to about 500mm in the south.[2] Groundwater, an excessive quantity of water stored in Nigeria's underground *aquifers,* is sited in several hydrological districts adjacent to major rivers. Yield at these sources fluctuates from 0.7 to 37.0 liters per second depending on the location.[3]

Vast applications in the ecosystem depend fundamentally on water as a vital supply for development and universal existence and continuity. According to the Food and Agriculture Organization (FAO) of the United Nations, more than 68% of the total water withdrawal in Nigeria is used for

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2. Orubu C. O., (2006) *Water Resources, Environment and Sustainable Development in Nigeria* [pdf] available from: http://www.krepublishers.com/02-Journals/JHE/JHE-19-0-000-000-2006-Web/JHE-19-3-000-000-2006-Abstract-PDF/JHE-19-3-169-181-2006-1302-Orubu-C-O/JHE-19-3-169-181-2006-1302-Orubu-C-O-Text.pdf [Accessed on 7 July 2022]
3. Kundell J. (2008). *Water profile of Nigeria*, available from: http://www.eoearth.org/article/water_profile_of_Nigeria [Accessed on 07 July 2022]

the agriculture sector which includes irrigation and livestock, and 21% as municipal water withdrawal as of the year 2000 evaluation.[4] The ultimate use of water is effective in its pure condition; however, contaminated water adversely affects habitation. In reality, Nigeria is one of the countries that have polluted water as explained later in this research. FAO recorded that only 60% of the total population had access to safe drinking water in 2002.[5] The problem is more serious in the rural area as 51% of the citizens live without safe drinking water.

Many water-stressed areas have been forced to turn to their groundwater reserves, which frequently are pumped faster than they can be replenished. In addition to pressure on water resources from economic development and changes in social consumption patterns, water supply increasingly is constrained by land use changes (for example forest clearance, which tends to increase run-off and reduce water availability) and contamination from human settlements, industry and agriculture.

Water law usually has the objective of restoring and maintaining the chemical, physical and biological integrity of inland and marine waters. It may regulate the discharge of pollutants, activities affecting wetlands, accidental spills, and the use and disposal of wastes. Most enforcement agencies are given powers to assess administrative penalties, issue orders and initiate civil judicial actions. The legal treatment of pollution also is complicated by differences between identifiable "point" sources and "diffuse" sources of pollution. The latter category includes emissions that individually or

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4. Food And Agriculture Organization of The United Nations -FAO (2009) – *summary fact sheet*, available from: http://www.fao.org/nr/water/aquastat/data/factsheets/aquastat_fact_sheet_nga.pdf [Accessed on 7 July 2022]
5. Food and Agriculture Organization of The United Nations -FAO (2005)- *Nigeria, AQUASTAT*, available from: http://www.fao.org/NR/WATER/AQUASTAT/countries/nigeria/tables.pdf [Accessed on 7 July 2022]

separately are responsible for possibly insignificant amounts of pollution, such as small, often continuous discharges of wastes and utilization of pesticides and fertilizers in agriculture. Laws and regulations typically require that any discharge into water require a permit and impose strict liability on those who make discharge without or in violation of the conditions of a permit. Knowledge or intent is frequently irrelevant.[6]

Fresh water and marine environments are undeniably interlinked, but the legal regimes applicable to them differ widely in response to varied geographic, economic, social and political factors. The sea receives a large part of its pollution from rivers, but specific rules are needed to resolve its problems. One-quarter of all freshwater is found under the soil and generally is closely connected with surface waters, but their legal regimes are often distinct. Moreover, even the same type of water source may be regulated differently, according to the use to which the waters are put (e.g., domestic, agricultural and industrial purposes).

Water is the essential element that makes life on earth possible. Without water there would be no life. We usually take water for granted. It flows from our taps when they are turned on. Most of us are able to bathe when we want to, swim when we choose and water our gardens. Like good health we ignore water when we have it. Although 70% of the earth's surface is covered by water only a tiny fraction of this water is available to us as fresh water. About 97% of the total water available on earth is found in oceans and is too salty for drinking or irrigation. The remaining 3% is fresh water. Of this 2.997% is locked in ice caps or glaciers. Thus, only 0.003% of the earth' total volume of water is easily available to us as soil moisture, groundwater, water vapour and water in lakes, streams, rivers

6. See e.g. France, Tribunal administratif de Grenoble, June 8, 1984, *Michallon v. Secrétariat d'Etat à l'Environnement,* R.J.E., 1984/3, 240.

and wetlands. In short, if the world's water supply were only 100 litres our usable supply of fresh water would be only about 0.003 litres (one-half teaspoon). This makes water a very precious resource. The future wars in our world may well be fought over water. By the middle of this century, almost twice as many people will be trying to share the same amount of fresh water the earth has today. As freshwater become more scarce, access to water resources will be a major factor in determining the economic growth of several countries around the world.[7]

Water that is found in streams, rivers, lakes, wetlands and artificial reservoirs is called *surface water*. Water that percolates into the ground and fills the pores in soil and rock is called *groundwater*. Porous water-saturated layers of sand, gravel or bedrock through which ground water flows are called *aquifers.* Most *aquifers* are replenished naturally by rainfall that percolates downward through the soil and rock. This process is called natural recharge. If the withdrawal rate of an *aquifer* exceeds its natural recharge rate, the water table is lowered. Any pollutant that is discharged onto the land above is also pulled into the *aquifer* and pollutes the groundwater resulting in polluted water in the nearby wells.

Nigeria receives most of her rainfall during the months of April to September due to the seasonal winds and the temperature differences between the land and the sea. These winds blow from the opposite directions in the different seasons. They blow into Nigeria from the surrounding oceans during the summer season (or rainy season) and the harmattan wind that blow during the winter (or dry season). The weather in Nigeria is usually reasonably stable but varies geographically. In some years the commencement of the rains

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7. See generally, Erach Bharucha Textbook for Environmental Studies for Undergraduate Courses (New Delhi: University Grants Commission, 2004) p. 124

may be delayed considerably over the entire country or a part of it. The rains may also terminate earlier than usual. They may be heavier than usual over one part than over another. All these may cause local floods or drought. However, in Nigeria even areas that receive adequate rainfall during the rainy season suffer from water shortages in the dry season period due to lack of storage facilities or the pollution of the available water sources.

2. NATURE AND CONCEPT OF WATER POLLUTION

The importance of water and why it is necessary to maintain the purity of water was stated in the case of *Kerala State Board for Prevention and Control of Water Pollution V. Gwalior Rayan Silk Mtg (Wug) Co. Ltd*.[8] According to the Court 'ninety-five percent of the nations in the world have water-coasts. Water influences the life and health of the people, prominently and pronouncedly. It constitutes an important and integral part of our environment.'[9] Preservation of the purity of water has engaged the attention of administrators all over the world even from ancient times. Thus, Hawkes states that 'the sanitary laws of Moses are well known and the ancient Persians at least controlled river pollution. They were forbidden by law from discharging organic refuse and other filth into the rivers.'[10] Water pollution is therefore, primarily, a public health problem. This assertion cannot be faulted if we realize that major waterborne bacteria and viruses, leading to sickness and death emanated from or are brought about as a result of the pollution of the sources of drinkable water. Among the numerous sicknesses that originate from water contamination includes but not limited to typhoid fever, endemic diarrhoea,

8. (1986) AIR 256 Ker.
9. Ibid, Per Sukumaran, J.
10. See Hawkes, H. A. "Ecology and Industrial Society" in Goodman, G. T. (ed.) *The Ecology of Sewage Bacteria Beds,* p.119 cited by Shastri, S. C. Environmental Law (Lucknow, India: Eastern Book Company, 2012) p.249.

cholera, dysentery and other infectious diseases. In developing countries, such as Nigeria, this is still a major environmental problem.

What therefore is water pollution? Substances, bacteria or viruses present in such concentrations or numbers as to impair the quality of the water rendering it less suitable or unsuitable for its intended use and presenting a hazard to humans or to their environment is referred to as water pollution.[11]

The Water (Prevention and Control of Pollution) Act, 1974 (India) defined water pollution in the following words:

> *'water pollution' means such contamination of water or such alteration of physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.*[12]

By the above definition, water pollution covers all changes in physical, chemical or biological properties of water, including the rise in the temperature of water and discharge of radioactive substances into the water.[13] In other words, water pollution is the contamination of water bodies (e.g. lakes,

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11. Gilpin, A., Dictionary of Environmental Law (Cheltenham, UK: Edward Elgar Publishing Limited, 2000) Pp. 351
12. See Section 2 of The Water (Prevention and Control of Pollution) Act, 1974 (India).
13. See Bombay Environmental Action Group V. State of Maharashtra (1991) AIR 301 Bom.

rivers, streams, oceans, aquifers and groundwater) and it occurs when pollutants are discharged directly or indirectly into water bodies without adequate treatment to remove harmful compounds.

According to Shastri, 'the pollution of water means and includes rendering the water noxious or unfit for use, making soft water hard, making water saltish, altering its temperature, discharging substances which though harmless become noxious by combination with other substances in water or discharged into it.'[14] Therefore, water is considered polluted if some substance or condition is present to such a degree that the water cannot be used for a specific purpose; that is rendering water unfit for the ordinary usage. In other words, *when the quality or composition of water changes directly or indirectly as a result of man's activities such that it becomes unfit for any purpose it is said to be polluted***.** Thus, water pollution varies not only with the nature of the pollutants but also with the intended uses of the water.[15] In this case, water that is too polluted to drink may be satisfactory for industrial use; Water too polluted for swimming may not be too polluted for fish; and water too polluted for fish may still be suitable for sailing or hydroelectric power generation. This shows that the problem of water pollution is a relative term which is subject to different human value judgments which may correspond with the intended uses. Water pollution problems and their potential solutions therefore, differs greatly depending on the water in question - i.e. whether it is a river, a lake or an ocean.

Most rivers can recover relatively rapidly from some forms of pollution, especially oxygen demanding wastes and heat. This is because; such rivers are prone to rapid flow.

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14. See Shastri, S. C. Environmental Law, 4th Edn (Lucknow, India: Eastern Book Company, 2012) p.245.
15. G. Tyler Miller, Jr., Living in the Environment Concepts, Problems and Alternatives (Belmont California Wadsworth Publishers Co. Inc. 1975) p.277.

Although, rivers differ from one another, in sizes, length or width, there are three basic river problems that affect their capacity to cleanse themselves of any form of pollution. One problem arises with rivers that naturally have a slow rate of flow or rivers whose flow rates have been sharply reduced by excessive damming. A second problem occurs when river with an adequate flow in one season become more vulnerable in other months when flow may be greatly reduced. The third river problem involves the addition of non-biodegradable chemicals that may impair or destroy life on the river bottom, cause massive fish kills, or be biologically magnified in the food chain. In spite of this complex nature of rivers, they are characterized by fast flow rate that helps them to recover rapidly from pollution.

In contrast, to rivers, lakes have relatively little flow. The major problem of lakes particularly shallow ones near urban or agricultural settlement is that of accelerated autrophication or over fertilization by waste and runoff from natural, agricultural, urban, and industrial activities. Note that lakes share with rivers the problems of fish kill from toxic. Industrial pollution, toxic farm waste, untreated sewage, lethal concentrations of fertilizers, etc., all are combining to destroy life in Nigeria's rivers. Chemicals introduced into the water and destruction of bottom life from oil and sludges are even more 'susceptible to biological magnification of certain persistent or non-degradable chemicals.'[16]

Ocean can safely be regarded as the "ultimate sink" for most natural and man-made by-products of life. This means that everything that is thrown away either in liquid form or in a form that can be dissolve or flushed from the land, eventually reaches the sea, except for few substances that decomposes rapidly. In other words, all the rivers and lakes of the world

[16]. Ibid, p.281

with their loads of debris from cities, sewers, and even farmlands eventually empty into the sea. The unfortunate aspect of this is that the sea has no outlets. In spite of this shortcoming, it was believed, even though erroneously, that the ocean will continue to absorb all the waste that are being pump into it while at the same time providing all the food needed for the protein of human beings. If this trend continues, it is certain that the sea cannot sustain the human race with oil, mineral and other riches deposited therein. So, the earlier man realizes the vulnerability of these resources to his activities the better for the future development of mankind.

3. HISTORY AND DEVELOPMENT OF WATER POLLUTION LEGISLATIONS

The modern system of regulation of water cycle was implemented, in the United Kingdom, after the process of industrialisation had begun to put a strain on the river system, especially in the largest manufacturing areas. In 1847, Edwin Chadwick facilitated legislation, the Waterworks Clauses Act, 1847, which allowed for municipalities to include standard water work clauses which included requirements to supply water constantly and at a reasonable pressure and an offence to foul drinking water supplies.[17]

Both the Public Health Act, 1875 and the Rivers (Prevention of Pollution) Act, 1876 placed firmly in the hands of Local Government, as the municipal councils and the enforcement agencies for the offence of discharging or dumping sewage, industrial or mining wastes into the rivers. However, the laws were largely ineffective, due to the defence of "best practicable and available means" of rendering any waste harmless. The industries therefore often argue that there

[17]. See Kinnersley, D. Troubled Water (London: Shipman, 1988) p.48

were no means by which to clean up the pollution and this became problematic to the council.

A significant change was made with the passage of water Act, 1945 which gave central government stronger powers over most water supply functions. This was followed by the River Boards Act, 1948 and the Water Act, 1973. The Water Act, 1983 removed the local authority representation that had characterised the regulation of the water industry since the 19th century. The Water Act, 1989 divided the functions of the Water Authorities between the national Rivers Authority and Private Companies. The National Rivers Authority (Later the Environment Agency) inherited the main regulatory and water management functions of the Water Authorities, while the functions of water supply and sewage treatment were privatised. In 1991, various pieces of legislation, including the Water Act, 1989, were consolidated by five statutes. Of these statutes, the Water Resources Act, 1991 and the Water Industry Act, 1991 stands out. The Water Resources Act, 1991 deals with pollution control while the Water Industry Act, 1991 regulates the privatized aspects of the water industry, including the quality of water supply.

In the 19th C, with the passing of the Rivers Pollution Prevention Act, 1876, it became a criminal offence to "cause or knowingly permit" the pollution of any river. This phraseology also appears in the Water Resources Act, 1991. Note that the Water Resources Act, 1991 consolidated the National Rivers Authority regulatory responsibility for pollution control. It also improved the range of controls available to curb pollution by giving the Secretary of State the power to establish "water quality objectives" for particular stretches of water and indicate the environmental standards or quality to which water within specific designated areas is expected to conform. Once the water quality objectives have been set, the Environment Agency and the Secretary of State are under a duty to ensure

that the objectives are met so far as is practicable.[18] This is done by means of discharge consents. In general terms therefore, no one may discharge polluting substances to water without holding a discharge consent granted by the Agency. The Agency is thereby able to control the quality of a particular stretch of water by placing limits on the number of consents issued and by attaching conditions to those consents. Enforcement of the regime is provided for by a series of criminal offences, which prohibit discharges to controlled waters without a consent. This serves as a deterrent by imposing criminal sanctions on polluters.[19]

It is important to note that the pollution control device under the Water Resources Act, 1991 is primarily concerned with discharges from point sources. Pollution from diffuse sources is very difficult to control, because it arises from a diverse range of activities which have proved difficult to restrict or prohibit. Moreover, the particular contribution of each of the many diffuse pollution sources to the overall picture of water pollution is difficult to identify. To remedy this situation, the Act seeks to prevent pollution from diffuse sources by creating "protection zones" where potentially polluting activities may be curtailed.[20] Other legislations for the regulation of water resources in the UK are the Environment Act, 1995 and the Water Act, 2003.

The history of water pollution regulation in United States of America may be traced to the Clean Water Act, 1977, notwithstanding the fact that water pollution had been recognized as a major environmental problem in the United States for many decades.[21] Prior to the passage of the Clean

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18. See Water Resources Act, 1991, section 84.
19. See Thornton, J. et al. Environmental Law (2nd Edn.) (London: Sweet & Maxwell Ltd, 2004) p.218
20. See Water Resources Act, 1991, sections 93 & 94.
21. See Nadakavukaren, A. Our Global Environment: A Health Perspective 4th Edn. (Illinois: Waveland Press Inc, 1995) 572.

Water Act, 1977, the US water pollution control strategy focused on attempts to clean up waterways to the point that they could be used for whatever purpose state governments had determined their function should be, whether for drinking, swimming, fishing, navigation, etc. Thus, each stream or portion of a stream might have a different water quality standard, and if that standard was not being met, it was up to the state water pollution control agency to determine which discharger was responsible for the violation and to seek enforcement action. This system was totally ineffective for a number of reasons:

(a) designations of desired stream use were frequently modified to retain or attract industrial development;
(b) insufficient information was available on how pollutant discharges were affecting water quality;
(c) blame for violation was difficult, if not impossible to assess when more than one source was discharging into a water way;
(d) little attention was paid to the effects of pollution on the aquatic environment as a whole;
(e) only contaminants entering a waterway through pipe discharges were given much attention;
(f) the lack of enforcement power as State agencies had to negotiate with all the polluters along a given waterway in order to persuade polluters to reduce their discharges to acceptable level.
(g) due to the nature of river basins, many States discovered that in order to improve their own water quality, they had to persuade states upstream to pollute less.

The passage of the Clean Water Act, 1977 radically altered the above problems to water pollution control in the United States of America.

Elsewhere in the world, water quality issues rank high on the list of international environmental concerns. Not surprisingly, progress in controlling water pollution varies widely from one country to another. Most developed countries have imposed controls on industrial dischargers similar to those in the United States and the majority have helped finance the construction of sewage treatment plants.[22] The picture in the developing nations, such as Nigeria, is much less promising. Rapid industrial growth has given rise to numerous toxic pollutions as industrial dischargers dump poisonous effluent into nearby waterways, unhindered by nonexistent or seldom-enforced water pollution laws.[23]

It is important to note that in Nigeria, before the modern environmental law legislation, there has been some enactments that prohibits fouling of waters. For example, the Criminal Code Act,[24] in Section 245 provides that "any person who corrupts or fouls the water of any spring, stream, well, tank, reservoir, or place, so as to render it less fit for the purpose for which it is ordinarily used, is guilty of a misdemeanor, and is liable to imprisonment for six months. The Penal Code Law,[25] on its part provides in section 191 that "whoever voluntarily corrupts or fouls the water of any public well or reservoir or other public water supply so as to render it less fit for the purpose for which it is ordinarily used, shall be punished with imprisonment for a term which may extend to two years or with fine or with both.

The major legislation for the protection of water bodies and water pollution in Nigeria is the NESREA, Act, 2007. The combined provisions of sections 23 and 24 of the Act shows that the Agency was mandated to regulate water pollution in

22. Ibid.
23. Ibid, p.574.
24. Cap.77 LFN, 1990.
25. Cap. 89 LNN, 1963.

Nigeria. By section 23 (1) the Agency shall in collaboration with other relevant agencies make regulations for the purpose of protecting public health or welfare and enhancing the quality of water to serve the purpose of the Act. In drawing up proposals for such regulations and standards, the Agency shall take into consideration the use and value of public water supplies, propagation of marine and wildlife, recreational purposes, agricultural, industrial and other legitimate use.[26] By section 23 (3) of the Act, a person who violate the provisions of the regulations made pursuant to sub-section (1) of this section, commits an offence and shall on conviction, be liable to a fine not exceeding ₦50, 000 or to imprisonment for a term not exceeding one year or to both such fine and imprisonment and an additional fine of ₦5, 000 for every day the offence subsists. Where the offence is committed by a body corporate, it shall on conviction, be liable to a fine not exceeding ₦50,000 and an additional fine of ₦10,000 for every day the offence subsists.[27] Section 24 of the Act relates to the review of effluent limitations for existing point sources which shall require the application of the best management practice under circumstances as determined by the Agency. The Act empowers the Agency to make regulations on effluent limitations, on existing and new point sources for the protection of human, animal, marine and plant life. Any person who violates the provisions of the regulations commits an offence and shall on conviction be liable to a fine not exceeding ₦200, 000 or to imprisonment for a term not exceeding 2 years or to both such fine and imprisonment and an additional fine of ₦5, 000 for every day the offence subsists. Where the offence is committed by a body corporate, it shall on

[26]. Section 23 (2) of NESREA, Act, 2007.
[27]. Ibid, section 23(4) of the Act.

conviction be liable to a fine, not exceeding ₦1, 000,000 and additional fine of ₦50, 000 for every day the offence subsists.[28]

Of relevance too is section 27 (1) of the Act which is to the effect that 'the discharge in such harmful quantities of any hazardous substance into the air or upon the land and the waters of Nigeria or at the adjoining shorelines is prohibited, except where such discharge is permitted or authorized under any law in force in Nigeria.' Note that a person who violates the provisions of subsection (1) of this Section, commits an offence and is liable on conviction, to a fine, not exceeding N 1,000,000 or to imprisonment for a term not exceeding 5 years and where an offence under subsection (1) of this section is committed by a body corporate, it shall on conviction, be liable to a fine not exceeding N 1,000,000 and an additional fine of N50,000 for every day the offence subsists.[29] In addition, where an offence under subsection (1) of this section is committed by a body corporate, every person who at the time the offence was committed was in charge of the body corporate shall be deemed to be guilty of such offence and shall be liable to be proceeded against and punished accordingly provided that nothing contained in this subsection shall render any person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.[30]

Note that pollution of water is a tortuous act and is therefore covered by the tort of nuisance as it causes injury to person and property, comfort or health. In the Indian case of *Pakkle V. P. Aiyasami Ganapathi*,[31] it was declared by the Madras High Court that altering the natural quality of water thereby it is rendered less fit for any purpose for which in its

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28. Ibid, Section 24(5) of the Act.
29. See Section 27 (2) and (3) of the NESREA, Act, 2007.
30. Ibid, Section 27 (4)
31. (1969) AIR 351 Mad.

natural state it is capable of being used gives cause of action in nuisance. Action can also be brought against statutory bodies for nuisance by a private individual for water pollution. In *Goldsmith V. Tunbridge Wells Improvement Commissioners*,[32] the plaintiff was awarded an injunction to restrain the defendants from depositing sewage from their own town into a stream which passed through his land. The right to sue cannot be lost by long continuance of the pollution nuisance. Thus, in *Pride of Derby and Derbyshire Angling Assn Ltd. V. Poritish Cleanese Ltd*.,[33] it was held to be no excuse that the stream was already polluted by others, and the local authority acted not for profit but for the benefit of a large population, or that it had a statutory authority to drain a city. Similarly, in *Overseas Tankship U.K. Ltd. V. Morts Dock & Eng. Co. Ltd*,[34] it was observed by the Privy Council that the spillage of oil on sea water due to negligence of the servants of the defendants amounted to nuisance. This is also true of discharge of refuse, effluents, oil, waste, etc into water. They are actionable under the law of tort as an action for nuisance.

Note that section 191 of the Penal Code Law,[35] states that "whoever voluntarily corrupts or fouls the water of any public well or reservoir or other public water supply so as to render it less fit for the purpose for which it is ordinarily used, shall be punished with imprisonment for a term which may extend to two years or with fine or with both."[36] The Criminal Procedure Code (CPC) of the Northern States in Chapter IX makes provision for public nuisance which can cover water pollution. Specifically, section 104(1) empowers the magistrate on receiving a police report or other information and on taking

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32. (1886) 1 Ch. App. 349; see also Dell V. Cheshana Urban District Council (1921) 3 KB 427.
33. (1953) 2 Ch 149 (CA).
34. (1961) AC 388 (Wagon Mound No.1 Case).
35. Cap. 189 LNN, 1963
36. See also Section 245 of the Criminal Code Act, Cap. 77 LFN, 1990.

such evidence, if any, as it think fit that an offence under section 191, 192, 194, 196 or 197 of the Penal Code is being committed, such magistrate may make a conditional order requiring the offender within a time fixed in the order to cease committing such offence and to amend or remove the causes thereof in such manner as in the order specified or to appear before the Court at a time and place to be fixed by the order and apply to have the order set aside or modified in manner hereinafter provided. The Indian Court applied the provision of the Criminal Procedure Code, 1973, especially sections 133 and 144 which are in *pari materia* with section 104 of the CPC of Northern Nigeria, 1963 that empowers the magistrate to deal with public nuisance, in *Municipal Council, Ratlam V. Vardichan.*[37] In that case, residents of Ratlam filed a complaint under section 133 of CPC alleging that the municipality had failed to prevent the discharge from the nearby alcohol plant of Malodorous fluids into the public street and provide sanitary facilities on the roads. The Supreme Court of India directed the municipality to follow the statutory duties and stop the effluents from the alcohol plant from flowing into the public street. According to the Court:

> *The law will relentlessly be enforced and the plea of poor finance will be poor alibi when people in misery cry for Justice. The dynamics of the judicial process has a new 'enforcement' dimension not merely through some of the provisions of the Criminal Procedure Code (as here) but also through activated tort consciousness. The officers in charge and even the elected representatives will have to face the penalty of the law if what the Constitution and follow-up*

[37]. (1980) 4 SCC 162.

legislation direct them to do are defied or denied wrongfully. The wages of violation is punishment, corporate and personal.

4. SOURCES OF WATER POLLUTION

Water pollution come from either point sources or dispersed (non-point) sources. A point source is a pipe or channel, such as those used for discharge from an industrial facility or a city sewerage system. That is, when a source of pollution can be readily identified because it has a definite source and place where it enters the water it is said to come from a **point source.** A good example is the Municipal and Industrial Discharge Pipes. A dispersed (or nonpoint) source is a very broad unconfined area from which a variety of pollutants enter the water body, such as the runoff from an agricultural area, acid rain, etc. In other words, when a source of pollution cannot be readily identified, they are said to be **non-point sources** of pollution.

Point sources of water pollution are easier to control than dispersed sources, because the contaminated water has been collected and conveyed to one single point where it can be treated. Pollution from dispersed sources is difficult to control, and, despite much progress in the building of modern sewage-treatment plants, dispersed sources continue to cause a large fraction of water pollution problems.

The following are the summary of the major sources of water pollution:

(a) Industrialization - discharge of wastes into streams and rivers;
(b) Agriculture - fertilizer and animal manure runoffs from farms;
(c) Wastes from Mining operations;
(d) Domestic wastes from homes, especially in rural areas and urban slums;

(e) Oil spills and leaks in the course of transporting oil using water transportation;
(f) Bacteria, viruses and other organisms that can cause disease, for example, cholera, typhoid fever and dysentery;
(g) Inorganic salts that cannot be removed by any simple conventional treatment process, making the water less suitable for drinking, for irrigation and for many industries;
(h) Plant nutrients such as potato, phosphates and nitrates which, while largely inorganic salt, have the added effect of increasing weed growth, promoting algal blooms and producing, by photosynthesis, organic matter which may settle to the bottom of a lake;
(i) Oily materials that may be inimical to fish life, cause unsightliness, screen the river surface from the air thus reducing re-oxygenation, accumulate in troublesome quantities, or have a high oxygen demand;
(j) Specific toxic agents, ranging from metal salts to complex synthetic chemicals;
(k) Waste heat that may render the river less suitable for certain purposes;
(l) Silt that may enter a river in large quantities causing changes in the character of the river bed; and
(m) Radioactive substances, etc.[38]

4.1 Pollutants that Causes Water Pollution

Water bodies can be polluted by a wide variety of substances, including pathogenic microorganisms, putrescible organic waste, fertilizers and plant nutrients, toxic chemicals,

[38]. Gilpin, A., Dictionary of Environmental Law (Cheltenham, UK: Edward Elgar Publishing Limited, 2000) Pp. 351-357.

sediments, heat, petroleum (oil), and radioactive substances.[39] There are several classes of common water pollutants and some of them are considered below:

1. One category of water pollutants is **disease-causing agents.** These are **disease-causing agents** (pathogens) which include bacteria, viruses, protozoa and parasitic worms that enter water from domestic sewage and untreated human and animal wastes. Human wastes contain concentrated populations of coliform bacteria such as Escherichia coli and Streptococcus faecalis. These bacteria normally grow in the large intestine of humans where they are responsible for some food digestion and for the production of vitamin K. These bacteria are not harmful in low numbers. Large amounts of human waste in water, increases the number of these bacteria which cause gastrointestinal diseases. Other potentially harmful bacteria from human wastes may also be present in smaller numbers. Thus, the greater the amount of wastes in the water the greater are the chances of contracting diseases from them.[40]
2. Another category of water pollutant is **oxygen depleting wastes.** These are organic wastes that can be decomposed by aerobic (oxygen requiring) bacteria. Large populations of bacteria use up the oxygen present in water to degrade these wastes. In the process this degrades water quality. The amount of oxygen required to break down a certain amount of organic matter is called the biological oxygen demand (BOD). The amount of BOD in the water is an indicator of the level of pollution. If too much organic matter is added to the water all the available oxygen is

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[39]. See generally Erach Bharucha Textbook for Environmental Studies for Undergraduate Courses (New Delhi: University Grants Commission, 2004) Pp. 125-128

[40]. Ibid.

used up. This causes fish and other forms of oxygen dependent aquatic life to die.[41] Thus, anaerobic bacteria (those that do not require oxygen) begin to break down the wastes. Their anaerobic respiration produces chemicals that have a foul odour and an unpleasant taste that is harmful to human health.

3. A third class of pollutants are **inorganic plant nutrients**. These are water soluble nitrates and phosphates that cause excessive growth of algae and other aquatic plants. The excessive growth of algae and aquatic plants due to added nutrients is called *eutrophication*. They may interfere with the use of the water by clogging water intake pipes, changing the taste and odour of water and cause a build-up of organic matter. As the organic matter decays, oxygen levels decrease and fish and other aquatic species die. The quantity of fertilizers applied in a field is often many times more than is actually required by the plants. The chemicals in fertilizers and pesticides pollute soil and water. While excess fertilizers cause eutrophication, pesticides cause bioaccumulation and biomagnification. Pesticides which enter water bodies are introduced into the aquatic food chain. They are then absorbed by the phytoplanktons and aquatic plants. These plants are eaten by the herbivorous fish which are in turn eaten by the carnivorous fish which are in turn eaten by the water birds. At each link in the food chain these chemicals which do not pass out of the body are accumulated and increasingly concentrated resulting in biomagnification of these harmful substances. One of the effects of accumulation of high levels of pesticides such as DDT or gamalin-20 is that birds lay eggs with shells that are much thinner than normal. This results in the

[41]. Ibid, p. 125

premature breaking of these eggs, killing the chicks inside. Birds of prey such as hawks, eagles and other fish-eating birds are affected by such pollution. Although DDT has been banned for agricultural use, it is still being used for fishing in rural communities.

4. A fourth class of water pollutants is **water soluble inorganic chemicals** which are acids, salts and compounds of toxic metals such as mercury and lead. High levels of these chemicals can make the water unfit to drink, harm fish and other aquatic life, reduce crop yields and accelerate corrosion of equipment that use this water.
5. Another cause of water pollution is a variety of **organic chemicals**, which include oil, plastics, pesticides, cleaning solvents, detergent and many other chemicals. These are harmful to aquatic life and human health. They get into the water directly from industrial activity either from improper handling of the chemicals in industries and more often from improper and illegal disposal of chemical wastes.
6. **Sediment of suspended matter** is another class of water pollutant. These are insoluble particles of soil and other solids that become suspended in water. The sediments (e.g., silt) results from soil erosion or construction activity and are usually carried into water bodies by surface runoff. High levels of soil particles suspended in water, interferes with the penetration of sunlight. This reduces the photosynthetic activity of aquatic plants and algae disrupting the ecological balance of the aquatic bodies. When the velocity of water in streams and rivers decreases the suspended particles settle down at the bottom as sediments. Excessive sediments

that settle down destroys feeding and spawning grounds of fish, clogs and fills lakes, artificial reservoirs, etc.[42]

7. **Water soluble radioactive isotopes** are yet another cause of water pollution. These can be concentrated in various tissues and organs as they pass through food chains and food webs. Ionizing radiation emitted by such isotopes can cause birth defects, cancer and genetic damage or disorder.
8. **Hot water** as a source of pollutant**:** Heat is considered to be a water pollutant because it decreases the capacity of water to hold dissolved oxygen in solution, and changes the breeding cycles of various aquatic organisms. Valuable species of game fish (e.g., trout) cannot survive in water with very low levels of dissolved oxygen. Hot water let out by power plants and industries that use large volumes of water to cool the plant result in rise in temperature of the local water bodies. A major source of heat is the practice of discharging cooling water from power plants into rivers or a water source.[43] Power plants heat water to convert it into steam, to drive the turbines that generate electricity. For efficient functioning of the steam turbines, the steam is condensed into water after it leaves the turbines. This condensation is done by taking water from a water body to absorb the heat. This heated water, which is as much as 15 °C (27 °F) warmer than the naturally occurring water is discharged back into the water body. The rise in water temperatures because of global warming can also be considered a form of water pollutant.
9. **Petroleum (oil)** is another source of pollutants. Oil is washed into surface water in runoff from roads and

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42. Erach Bharucha Textbook for Environmental Studies for Undergraduate Courses (New Delhi: University Grants Commission, 2004) p. 127
43. Ibid.

parking lots which also pollutes groundwater. Leakage from underground tanks is another source of pollution. Accidental oil spills from large transport tankers at sea have been causing significant environmental damage. Though accidents such as the Exxon Valdez get worldwide attention, much more oil is released as a result of small, regular releases from other less visible sources. Nearly two thirds of all marine oil pollution come from three sources: runoff from streets, improper discharge of lubricating oil from machines or automobile crankcases and intentional oil discharges that occur during the loading and unloading of tankers. Oil tankers often use sea water as ballast to stabilize the ship after they have discharged their oil. This oil contaminated water is then discharged back into the sea when the tanker is refilled.

10. **Solid wastes** are another source of pollutants: The improper disposal of solid waste is a major source of water pollution. Solid waste includes garbage, rubbish, electronic waste, trash, and construction and demolition waste, all of which are generated by individual, residential, commercial, institutional, and industrial activities. The problem is especially acute in developing countries that may lack infrastructure to properly dispose of solid waste or that may have inadequate resources or regulation to limit improper disposal. In some places solid waste is intentionally dumped into bodies of water. Land pollution can also become water pollution if the trash or other debris is carried by animals, wind, or rainfall to bodies of water. Significant amounts of solid waste pollution in inland bodies of water can also eventually make their way to the ocean. Solid waste pollution is unsightly and damaging to the health of aquatic ecosystems and can harm wildlife directly. Many solid wastes, such as plastics and

electronic waste, break down and leach harmful chemicals into the water, making them a source of toxic or hazardous waste.

11. **Toxic waste** as another source of water pollution**:** Toxic waste is considered toxic if it is poisonous, radioactive, explosive, carcinogenic (causing cancer), mutagenic (causing damage to chromosomes), teratogenic (causing birth defects), or bioaccumulative (that is, increasing in concentration at the higher ends of food chains). Sources of toxic chemicals include improperly disposed wastewater from industrial plants and chemical process facilities (lead, mercury, chromium) as well as surface runoff containing pesticides used on agricultural areas and suburban lawns (chlordane, dieldrin, heptachlor).

5. GROUNDWATER AND GROUNDWATER POLLUTION

'Water resources' does not mean only the rivers, lakes, constructed reservoirs, oceans, and other surface water sources that are visible, accessible, and useful not only for direct consumption but for transportation and recreation activities. This is because, greater percentage of all available fresh water supplies today occur in the form of **groundwater**. Groundwater supplies constitute an invaluable natural resource. It has the following advantages over surface water sources:

i. the soil through which it percolates filters out most of the bacteria, suspended materials, and other contaminants that find easy access to rivers, lakes and streams.

ii. because evaporation is virtually zero and seasonal fluctuations in supply are small, groundwater supplies are dependable year-round.

iii. in terms of cost, the expense of digging a well is generally less than that of piping surface water to its

place of use and it is also less expensive to treat prior to consumption because of its purity.

Until recently, communities relying on groundwater for their municipal supplies tended to take this resource largely for granted, assuming that adequate quantities of high-quality water would always be available. Today, however, a sense of alarm is spreading with the realization that the twin evils of pollution and over-use are threatening the integrity of groundwater supplies, not only in Nigeria, but across the world.

5.1 Nature of Groundwater

When rain falls upon the earth that which is not taken up by plant roots or lost as surface runoff percolates downward through the soil until it reaches the water table. The water table is the upper limit of the zone of saturation – an area where the spaces between the rock particles are completely filled with water. These moisture laden strata are called *aquifers* or water carriers. Above the zone of saturation lies the zone of aeration, where some soil moisture may be found as capillary water – useful for plants but incapable of being pumped out by humans. The zone of saturation extends downward until it is limited by an impermeable layer of rock. Sometimes there are successive layers of groundwater separated by impermeable rock layers.

Aquifers may range from a few feet to several hundreds of feet in thickness and they may underlie a couple of acres or many square miles. They may occur just below the soil surface or thousands of feet below the earth, though seldom deeper than two miles. The amount of water that any given *aquifer* can hold depends on its porosity – the ratio of the spaces between the rock particles to the total volume of rock. Sand and gravel *aquifers* are examples of rocks with high porosity. Additionally, if water is going to move through an *aquifer*, its

pores must be interconnected. To qualify as a good *aquifer*, a rock layer must contain many pores, cracks, or both. The rate of water movement through an *aquifer* varies, not surprisingly, with the type of rock; through gravel it may travel tens or hundreds of feet per day; in fine sand only, a few inches or less per day. When hydrologists measure the flow of surface streams, they do so in terms of feet per second; when measuring groundwater flow, figures in feet per year are the rule.[44]

5.2 Groundwater Pollution

The inherent superiority of groundwater over surface water due to its supposed freedom from contamination can no longer be taken for granted. Over the years, different chemical, biological, and radiological pollutants have been identified in groundwater deposits across the world. Cases of pollutants in groundwater tend to occur mostly in populated areas where the *aquifer* is the principal or only source of local drinking water. This has raised legitimate concerns among the users of groundwater regarding both acute and chronic health effects of water drawn from groundwater sources. To this end, within the affected communities the discovery that groundwater is contaminated frequently has come as an unwelcome surprise since, contrary to the situation in lakes and rivers, and other surface waters, groundwater pollution is in a sense hidden, out of sight and difficult to detect without sophisticated chemical analyses and processes. Since many pollutants in groundwater are colourless, odourless, and tasteless, many citizens unknowingly consume health-threatening poisons for years. Thus, it was rightly stated that "because routine tests performed to ensure drinking water safety have only recently been

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44. See Nadakavukaren, A. Our Global Environment: A Health Perspective 4th Edn. (Illinois: Waveland Press Inc, 1995) 553.

expanded to include monitoring for toxic chemicals, well water pollution in the past was often detected only when noticeable numbers of people began to fall ill."[45]

Groundwater—water contained in underground geologic formations called *aquifers*—is a source of drinking water for many people. For example, an average household in Nigeria today depend on groundwater (well or bow-hole) for their domestic water supply. Although groundwater may appear crystal clear (due to the natural filtration that occurs as it flows slowly through layers of soil), and is generally a clean source of water, it may still be polluted by human activities such as improper sewage disposal, dumping of farm yard manures and agricultural chemicals, industrial effluents, dissolved chemicals and by bacteria and viruses. Sources of chemical contaminants include poorly designed or poorly maintained subsurface sewage-disposal systems (e.g., septic tanks), industrial wastes disposed of in improperly lined or unlined landfills or lagoons, leachates from unlined municipal refuse landfills, mining and petroleum production, and leaking underground storage tanks below petrol service stations. In coastal areas, increasing withdrawal of groundwater (due to urbanization and industrialization) can cause saltwater intrusion: as the water table drops, seawater is drawn into wells.

It has been stated above that "groundwater" is that water which percolates through or under land, as opposed to water flowing in a defined channel above or beneath it. Pollution of groundwater is an actionable nuisance. Thus, in the case of *Ballard V. Tomlinson,*[46] the plaintiff brewery was successful when the defendant deposited sewage in a well on his land which polluted water percolating through the plaintiff's land, with the result that they were unable to draw fresh water from

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45. Ibid, p.535
46. (1885)29 Ch. D.115.

their own well. In *Cambridge Water Company Ltd. V. Eastern Countries Leather Plc*,[47] the plaintiff water company abstracted water from a borehole which had become contaminated when solvents had seeped into the water course beneath the defendant's tannery and had percolated towards the borehole. The water company brought an action in negligence, nuisance and under the rule in *Rylanads V. Fletcher*.[48] The Court of Appeal held that the right to abstract unpolluted groundwater was a proprietary one, and that, accordingly, once the water company had shown causation, liability would follow. The House of Lords, however, reversed this decision, holding that the action was properly to be categorised as an action in nuisance, of which the rule in *Rylands V. Fletcher* was merely an offshoot, and that, following the dicta of Lord Reid in *The Wagon Mound (No.2)*,[49] foreseability of the type of harm was a necessary ingredient in the tort of nuisance. Therefore, because the tannery had permitted the solvents to be spilled at a time when their harmful effects were not known, they escaped liability. The House of Lord therefore distinguished this case from that of *Ballard V. Tomlinson,*[50] in which the issue of foreseability of harm did not arise.

It should be noted that development has the potential to affect water quality, by increasing surface run-off and, more significantly, by leading to the pollution of groundwater. To that extent, environment must be considered in planning decisions in our towns and cities. In other words, planning authorities should take account of environmental considerations, such as potential water pollution, flooding, waste management, etc, in preparing their development plans,

47. (1994)2 A C 264
48. (1868) LR 3 HL 330.
49. (1967) 1 AC 617)
50. Supra.

and must consult with relevant Environment Agencies in the locality.

5.3 Sources of Groundwater Pollution

Pollution of groundwater supplies by human-generated pollutants occurs largely due to faulty waste disposal practices or poor land management. Where that is the case, the source of pollution is said to be a point source. In other words, a **point source of pollution** is when a source of pollution can be readily identified because it has a definite source and place where it enters the water. Generally, ground water is polluted due to: (i.) Urban run-off of untreated or poorly treated waste water and garbage; (ii.) Industrial waste storage located above or near aquifers; (iii.) Agricultural practices such as the application of large amounts of fertilizers and pesticides, animal feeding operations, etc. in the rural sector; (iv.) Leakage from underground storage tanks containing gasoline and other hazardous substances; (v.) Leachate from landfills; (vi.) Poorly designed and inadequately maintained septic tanks; and (vii.) Mining wastes.[51] The most significant point sources of contamination of groundwater include:

(a) Septic systems and Injection wells: Under this system, liquid wastes are deliberately discharged directly into the ground. If such facilities are properly sited, waste discharges pose little hazard, but if located adjacent to or uphill from an aquifer or well, a potential for pollution exists. A number of outbreaks of waterborne diarrheal diseases such as salmonellosis, hepatitis A, and typhoid fever have been traced to well water contaminated by sewage from septic tanks. Similarly, injection wells, which depose of liquid hazardous wastes into supposedly

[51]. See Erach Bharucha, Textbook for Environmental Studies for Undergraduate Courses (New Delhi: University Grants Commission, 2004) p. 128

confined geological formations deep underground, have the tendency of polluting nearly aquifers.

(b) Waste storage, Treatment, or Disposal facilities: Unplanned seepage from open dumps, landfills, waste ponds, underground storage tanks, etc constitute a well-recognised and severe groundwater pollution threat if such facilities are improperly sited. To prevent groundwater pollution arising from such facilities therefore, it is suggested here that design requirements for the development of new land disposal facilities emphasize incorporation of barriers to prevent leachate migration, in order to protect the groundwater quality.

(c) Pipes, Materials Transport, Transfer Operations: Unintentional leakage from sewers or oil pipelines or accidental spills during transport or transfer of hazardous substances can be another source of groundwater pollution. In addition, the majority of problems of groundwater contamination, especially those involving high concentrations of pollutants is traced to locations where pesticidal formulations were routinely prepared (and routinely spilled on the ground) prior to field application.[52]

Note that pollution of groundwater may also arise through non-point sources. When a source of pollution cannot be readily identified, such as agricultural runoff, acid rain, etc, they are said to be **non-point sources** of pollution. In other words, non-point sources of groundwater pollution are those sources which run off or seep into groundwater from broad areas of land rather than entering the groundwater through a discreet pipe or conduit. Therefore, many instances of groundwater contamination can be traced to substances

[52]. See Nadakavukaren, op cit. p. 555.

discharged as a result of other activities, such as irrigation practices, mine drainage, field application of farm chemicals or manures, urban street runoff, among others. Sources such as these are responsible for a host of water quality problems found in numerous groundwater locations today.

The most disturbing aspect of groundwater pollution is the fact that by the time the problem is discovered, it is generally too late to do anything about it. Because of the very slow rate of groundwater flow, chemical pollutants will not be flushed out of an aquifer for many years after the source of contamination is cut off (conversely, and for the same reason, contamination of one part of an aquifer does not necessarily affect the use of other parts). Thus, unlike the situation in surface waters, where naturally occurring microbes gradually break down organic pollutants, groundwater is largely devoid of the oxygen needed by the bacteria and other decomposer organisms that endow streams and lakes with their capacity for self-purification.

While groundwater is easy to deplete and pollute it gets renewed very slowly and hence must be used judiciously. Groundwater flows are slow and not turbulent hence the contaminants are not effectively diluted and dispersed as compared to surface water. Moreover, pumping groundwater and treating it is very slow and costly. Hence it is extremely essential to prevent the pollution of groundwater in the first place. Note that cleanup of a polluted *aquifer*, while theoretically possible, is so expensive and time-consuming that it is usually not feasible. The process generally involves drilling numerous wells, pumping out numerous quantities of water, treating the water to remove the contaminants, and then reinjecting the water into the *aquifer*.[53] The process of clean up

[53]. See Rail, C. D. Groundwater Contamination: Sources, Control, and Preventive Measures. (Technomic Publishing Co., 1989).

polluted *aquifer* is not feasible in developing economies like Nigeria. Thus, for all practical purposes, a community that finds its groundwater seriously contaminated has little choice but to close the affected well and seek a new water supply. This means that groundwater protection strategies, should logically focus on preventing pollution of groundwater rather than on efforts to clean up an *aquifer* after the damage is done.

6. LAW AND PRACTICE RELATING TO WATER POLLUTION IN NIGERIA

Although pure water is rarely found in nature (because of the strong tendency of water to dissolve other substances), the characterization of water quality (i.e., clean or polluted) is a function of the intended use of the water. For example, water that is clean enough for swimming and fishing may not be clean enough for drinking and cooking. Water quality standards (limits on the amount of impurities allowed in water intended for a particular use) provide a legal framework for the prevention of water pollution of all types. There are several types of water quality standards. Stream standards are those that classify streams, rivers, and lakes on the basis of their maximum beneficial use; they set allowable levels of specific substances or qualities (e.g., dissolved oxygen, turbidity, pH) allowed in those bodies of water, based on their given classification. Effluent (water outflow) standards set specific limits on the levels of contaminants (e.g., biochemical oxygen demand, suspended solids, nitrogen) allowed in the final discharges from wastewater-treatment plants. Drinking-water standards include limits on the levels of specific contaminants allowed in potable water delivered to homes for domestic use. In the United States, the Clean Water Act, 1977 and its amendments regulate water quality and set minimum standards for waste discharges for each industry as well as regulations for specific problems such as toxic chemicals and oil spills. In

the European Union, water quality is governed by the Water Framework Directive, the Drinking Water Directive, and other laws.[54]

In Nigeria, water quality standards are governed by the National Environmental Standards and Regulations Enforcement Agency Act, 2007. Section 23 of the Act provides that the Agency shall, in collaboration with other relevant agencies, make regulations for the purpose of protecting public health or welfare and enhancing the quality of water to serve the purpose of the Act. In drawing up proposals for such regulations and standards, the Agency shall take into consideration the use and value of public water supplies, propagation of marine and wildlife, recreational purposes, agricultural, industrial and other legitimate use.[55] By section 23 (3) a person who violates the provisions of the regulations made pursuant to subsection (1) of that section, commits an offence and shall on conviction, be liable to a fine not exceeding N50, 000 or to imprisonment for a term not exceeding one year or to both such fine and imprisonment and an additional fine of N5, 000 for every day the offence subsists. Note that where an offence under subsection (1) of the section is committed by a body corporate, it shall on conviction, be liable to a fine not exceeding N50, 000 and an additional fine of N10, 000 for every day the offence subsists.[56]

In furtherance to the provisions of section 23 of the NESREA Act, 2007, the National Environmental (Surface and Groundwater Quality Control) Regulations, 2011[57] was promulgated. The Regulations was enacted for the purpose of regulating and controlling the quality of both the surface and ground water in Nigeria. Part A of the regulations deal with the

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54. https://www.britannica.com/science/water-pollution
55. NESREA Act, 2007, Section 23 (2)
56. Ibid, Section 23 (4)
57. Government Notice No. 136 of 24th May, 2011

surface water quality control. By Regulation I, the purpose of these regulations is to restore, enhance and preserve the physical, chemical and biological integrity of the nation's surface water, and to maintain existing water uses. The standards contained in the regulations provide for the protection of surface waters from pollutants so that the waters shall be protected, used, developed, conserved, managed and controlled in ways which take into account among other factors: (a) Citizens' right of access to clean water and sanitation; (b) Protection of the water environment for sustainability of the resources and protection of aquatic ecosystem; and (c) Reduction and prevention of pollution and degradation of surface water resources and recognition of the preventive, precautionary and polluter-pays-principles. The Regulations shall apply to all surface waters of Nigeria including local and trans-boundary water.[58]

Note that activities in violation of the water quality standards in Nigeria includes discharge of pollutants into the water. Thus, Regulation 6 is to the effect that "a person shall not discharge pollutants into any waters of the nation or perform any activities alone or in combination which the Agency determines will likely result in the violation of any of these water quality criteria or interfere with one or more of the existing or designated uses assigned to the receiving waters or to downstream waters in accordance with regulations 4 and 5 of these regulations."[59]

In practice, the meaning of polluting was considered in *R V Dovermoss Ltd.*[60] In that case, the Court of Appeal rejected the argument of Dovermoss that to establish that polluting

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58. Regulation 2
59. See also Regulation 7
60. The Times, February 3, 1995; see also the case of *National Rivers Authority V. Egger UK Ltd*. (unreported) Newcastle Upon Tyne Crown Court, June 15-17, 1992

matter had entered controlled waters, it was necessary for the National River Authority to show that harm had resulted to animals or plant life in those rivers. The court rather based its decision on the dictionary definition of 'pollute,' to wit "to make physically impure, foul or filthy; to dirty, stain, taint, be foul". The court therefore held that actual harm need not be shown. It was sufficient to established the offence under Section 85(i) of the Water Resources Act, 1991 it could be shown that the matter in question gave rise to the likelihood, or simply had the capability of causing harm.

Regulation 35 of the National Environmental (Surface and Ground Water Quality Control) Regulations, 2011 interpreted "discharge" to mean "any person who causes or allows any discharge." Elsewhere, causing polluted matter to enter or to be discharged into controlled waters is an offence of strict liability. In other words, so long as a causal link can be shown between the defendants' activities and the entry or discharge of the matter, liability will follow without the need to show that the defendant intended or was negligent as to the entry of discharge in question.[61]

Note that in order for an offence of "causing" to be made out, a direct causal link must exist between the conduct of the defendant and the occurrence of the pollution. This means that where the chain of causation is broken either by the intervening act of a third party, or by an Act of God, the defendant may escape liability.[62] However, where the nature of an intervening act of a third party is clearly foreseeable, it will not enable the defendant to escape liability.[63]

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61. See Alphacell V. Woodward (1992) A.C. 824); Environment Agency V. Empress Car co. (Abertillery Ltd (1999) 2 A. C. 22.
62. See Impress (Worcaster) Ltd V Rees. (1971) 2 All E.R 357; National Rivers Authority V. Wright Engineering Co. Ltd (1994) 4 ALLE.R 281.
63. See National Rivers Authority V. Yorkshire Water Service Ltd (1995) 1 All E. R. 225.

Part B of the regulations deal with the ground water quality control. By regulation 19, the purpose of these regulations is to protect groundwater sources by regulating the discharge and underground injection of hazardous wastes fluids used for extraction of minerals, fossil fuels energy, and any other substances having the potential to contaminate groundwater.

6.1 DEFENCES

In spite of the general provisions of the regulations on the prohibition of discharge of pollutants in to the waters of Nigeria, there are some defences that are open to potential violators under the Act or Regulations. Even though for water pollution offences, there is no general defence of taking all reasonable precautions and exercising all due diligence to avoid the commission of an offence, there are, however, a number of specific statutory defences to prosecution. The most obvious, of course is that the discharge in question either into the surface waters or groundwaters of Nigeria was made in accordance with the conditions of a permit or authorization or license granted by the relevant agencies under the Act or Regulations. Of relevance here is Regulation 14 (1) which is to the effect that "a person shall not release any substance into or conduct any activity which will likely cause or contribute to pollution or adversely affect species of the waters of the nation; without having obtained all required approvals and permits from the Agency. The activities referred to in regulation 14(1) include but not limited to:

a. Discharge of waste water'
b. Discharge of pollutants;
c. Dredging of surface water;
d. Dredging and dredged material disposal;

e. Filling of surface waters of the nations;
f. Construction activities;
g. Mining activities;
h. Any commercial, industrial, state or municipal land development that results in the creation of 3700m^2 or more of additional impervious area;
i. Two hectares (five acres) or more of land disturbances;
j. Marinas-construction of new facilities or expansion of existing facilities;
k. Flow alterations;
l. Harbor management plans for those elements which will likely affect water quality;
m. A point source discharge of pollutants; or
n. Any other activity that may produce a measurable change in a water body.[64]

Additionally, where any project or activity mentioned in regulation 14(2) requires a permit or approval by any other authority, the approval or permit shall be obtained before commencement of the project.[65] To this end, applications for permits shall be submitted and processed in accordance with the National Environmental (Permitting and Licensing System) Regulations, 2009 and shall contain such documentation and/or information as the Agency may require, including but not limited to; (a) hydrology of the area; (b) type of discharge, the concentration and quality; (c) timetable for and duration of the proposed construction or other activities; etc.[66]

The Regulations also make provisions for ground water discharge permits. By Regulations 22(1) therefore, a person

64. Regulation 14(2) of the National Environmental (Surface and Ground water Quality Control) Regulations, 2011
65. See Regulation 14(3)
66. See Regulation 15 (1)

shall not make or permit an outlet for the discharge of sewage or industrial waste or other wastes or the effluent therefrom, into any ground water of Nigeria without obtaining a permit from the Agency and the permit shall be issued subject to such conditions as stated in the permitting and licensing system of the Agency. Applications for ground water discharge permits shall be submitted using the forms prescribed by the Agency and shall contain such information as the Agency man require.[67]

Note that where discharge is made into the water to avoid danger to life or health and such steps as are reasonably practicable in the circumstances are taken to minimize the extent of the discharge or to mitigate its effect, it may serve as a good defence. Thus, in *Express Ltd (trading as Express Dairies Distribution) V. Environmental Agency*,[68] a dairy company successfully raised the defence that entry had taken place in an emergency to avoid danger to life or health. In that case, an employee of the dairy had been driving a mil tanker along a motorway in the course of the company's business. As a result of a tyre blow-out, the delivery pipe was sheared, causing several thousand litres of milk to escape from the tank. The driver pulled into the hard shoulder, stopping at a point where two drains fed into a brook and allowed the milk to enter the brook. The court accepted that this action had been taken in an emergency.

7. EFFECTS OF WATER POLLUTION

1. *Restriction and reduction of light penetration.* The presence of foreign materials in the water, for example, suspended particles, makes water turbid

67. See Regulation 22(2)
68. (2003) EWHC 448 Admin

and this reduces light penetration, photosynthesis and restricts plant growth.

2. *Damage to animals*: In addition to the restriction of plant growth, water pollution also reduces visibility in the water and limits the food gathering capacity of many animals in the water. Besides, fish and other invertebrates have their respiratory efficiency reduced because the gill surface became clogged with suspended matters.
3. *Damage to human health*: Water pollution affects human health by causing infectious water borne disease such as typhoid fever, dysentery, cholera etc. These sicknesses have reached epidemic stage at different times in Nigeria.
4. *Nuisance and aesthetic insult*. Muddy water resulting from runoff or drainage from mining locations creates nuisance in the society especially when the water is stagnant which create offensive odour or smell.
5. *Property damage*. Where air pollution results in acid rain, the ultimate effect is that, such rain dissolves salts and other minerals, which is capable of corroding metals and other properties when exposed to it. It is not uncommon to see acid rain killing trees, poisoning waters and damaging buildings. The recent smog filled air in Lagos is a pointer to the fact that if nothing is done fast, acid rain will take over Lagos with the attendant devastating consequences.

8. RECOMMENDATIONS

Waste water from domestic or industrial sources or from garbage dumps is generally known as **sewage.** It may also contain rain water and surface runoff. The sewage water can be treated to make it safe for disposal into water bodies like rivers,

lakes etc. The treatment involves three stages: primary, secondary and tertiary. This includes 1. Sedimentation, 2. Coagulation/flocculation, 3. Filtration, 4. Disinfection, 5. Softening and 6. Aeration. The first four steps are of primary treatment. The first three steps are involved in primary treatment remove suspended particulate matter. Secondary treatment removes organic solids, left out after primary treatment, through their microbial decomposition.[69]

Effluents after secondary treatment may be clean but contain large amounts of nitrogen, in form of ammonia, nitrates and phosphorous which can cause problem of eutrophication upon their discharge into a receiving water body such as river, lake or pond. The tertiary treatment is meant to remove nutrients, disinfect for removing pathogenic bacteria, and aeration removes hydrogen sulphide and reduce the amount of carbon dioxide and make water healthy and fit for aquatic organisms. This treatment of waste water or sewage is carried out in effluent treatment plants especially built for this purpose. The residue obtained from primary treatment is known as sludge.

While the foremost necessity is prevention, setting up effluent treatment plants and treating waste through these can reduce the pollution load in the recipient water. The treated effluent can be reused for either gardening or cooling purposes wherever possible. A few years ago, a new technology called the Root Zone Process has been developed by Thermax. This system involves running contaminated water through the root zones of specially designed reed beds. The reeds, which are essentially wetland plants have the capacity to absorb oxygen from the surrounding air through their stomatal openings. The oxygen is pushed through the porous stem of the reeds into the hollow roots where it enters the root zone and creates

[69]. Erach Bharucha, op cit, p. 130

conditions suitable for the growth of numerous bacteria and fungi. These micro-organisms oxidize impurities in the wastewaters, so that the water which finally comes out is clean.[70]

Water recycling is another method of conserving water. With increasing population, the requirement for water is increasing rapidly. However, the availability of water is limited but an ever-increasing water withdrawal from different sources such as rivers, lakes and ground water are depleting these sources and deteriorating their water quality. Therefore, it is essential to utilize the available water with maximum economy. This involves recycling of waste water for certain uses with or without treatment. Recycling refers to the reuse of waste-water by the original user prior to the discharge either to a treatment system or to a receiving water body. Thus, the waste water is recovered and repetitively recycled with or without treatment by the same user.

To maintain a balanced ecological system in our waters, there is need for the treatment of the various industrial effluents to safety levels before discharge. This method is to help nature absorb and degrade some of the pollutants. This is on the realization that nature itself is a polluter therefore it will not be feasible to achieve a zero discharge of most water pollutants.

In Nigeria, the National Environmental Standards and Regulations Enforcement Agency Act, 2007[71] established an Agency that have responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general and environmental technology, including coordination and liaison with relevant stakeholders within and outside Nigeria on matters of enforcement of environmental standards,

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70. Ibid.
71. NESREA Act, No. 25 of 30th July, 2007

regulations, rules, laws, policies and guidelines.[72] The Act in section 27(1) prohibits, except where such discharge is permitted or authorized under any law in force in Nigeria, the discharge in such harmful quantities of any hazardous substance into the air or upon the land and the waters of Nigeria or at the adjoining shorelines. By subsection 2 thereof, a person who violates the provisions of subsection (1) of Section 27, commits an offence and is liable on conviction, to a fine, not exceeding N 1,000,000 or to imprisonment for a term not exceeding 5 years. Where an offence under subsection (1) of section 27 is committed by a body corporate, it shall on conviction, be liable to a fine not exceeding N 1,000,000 and an additional fine of N50,000 for every day the offence subsists.[73] Note that where an offence under subsection (1) of section 27 is committed by a body corporate, every person who at the time the offence was committed was in charge of the body corporate shall be deemed to be guilty of such offence and shall be liable to be proceeded against and punished accordingly provided that nothing contained in this subsection shall render any person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.[74]

Perhaps the most encouraging event in an attempt to control water pollution through law is the enactment of the NESREA Act 2007 as amended in 2018. The enactment is the most comprehensive and powerful environmental law instrument passed in recent times. This enactment together with the regulations made under it in 2011, sets high standards of water quality and requires industrial polluters to meet increasingly stringent controls. No discharge can be made

72. Ibid, section 2.
73. Ibid, section 27 (3)
74. Ibid, section 27 (4)

without a permit by the Agency and no permits will be issued for highly radioactive wastes or for chemical and biological warfare agents. The law set stiff penalties for exceeding the allowed discharge rates, even though it is our opinion that the penalties provided could be higher.

By way of summary, the following measures can be adopted to control water pollution in Nigeria:

(a) The water requirement should be minimized by altering the techniques involved.
(b) Water should be reused with or without treatment.
(c) Recycling of water after treatment should be practiced to the maximum extent possible.
(d) The quantity of waste water discharge should be minimized.
(e) Enactment of water pollution control Act to provide stiffer penalties for water pollution offenders.
(f) Making the enforcement Agency more effective and efficient in their responsibility

9. CONCLUDING REMARKS

In this research, **water pollution**, the release of substances into subsurface groundwater or into lakes, streams, rivers, estuaries, and oceans to the point where the substances interfere with beneficial use of the water or with the natural functioning of ecosystems was discussed. In addition to the release of substances, such as chemicals, trash, or micro-organisms, water pollution may also include the release of energy, in the form of radioactivity or heat, into bodies of water. Water pollution intensified with the advent of the Industrial Revolution, when factories began releasing pollutants directly into rivers and streams. Water sources are also contaminated by rain runoff from such things as oil-licks, roads construction; mining and dump

sites; and livestock wastes from farm operations. Leaky septic tanks, pesticides and fertilizers are among the other sources that can contaminate groundwater. To avoid water pollution, do not dispose of oils, grease, fat, or chemicals down the sink. Flushing pills or medications can also negatively impact groundwater. Above all, the Agency saddled with the responsibility of overseeing the Nigerian environment (NESREA) should be properly equipped and given necessary support to discharge that responsibility with regards to the prevention and control of water pollution in Nigeria. Awareness creation on the negative impacts of water pollution should be intensified among the increasing population of Nigerians, especially in the rural communities.[75]

[75] History.com Editors. 'Water and Air Pollution.' https://www.history.com/topics/natural-disasters-and-environment/water-and-air-pollution. Access date 26 June 2022

An Examination of the Concept of Organ Harvesting Viz-A-Viz the Provision of the National Health Act of Nigeria 2014

David Dogara Goar*

Abstract

Good health is increasingly a very a paramount commodity in today's world. Given this backdrop, especially for those that can afford it, human organ transplant has become the new normal towards prolonging lives. As plausible as this is, this medical interference if left unchecked threatens the lives of many- especially the vulnerable poor ratio of our society. Therefore, the World Health Organisation in sync with the United Nations has come with a legal framework that emphasises informed consent as an indispensable pre-condition for human organ harvesting. Giving more credence to this framework other Regional treaties have been signed by State parties towards protecting their citizens against human organ trafficking. Nigeria as a State has enacted the National Health Act, 2014. This Act has resounding protective provisions towards guaranteeing good health ethics in Nigeria. Notwithstanding the foregoing, this said Act has come under severe scrutiny for failure to protect the citizens of Nigeria against uninformed consent or lack of consent before organ harvesting. In view of this, this work seeks to examine the historical antecedent of organ harvesting and transplanting; engage in certain conceptual clarification; interrogate certain provisions of the National Health Act as it relates to organ harvesting vis-à-vis international legal framework in this regard; and recommending plausible ways of amending the alarming provisions to meet up with international best practices.

Key words: Organ Harvesting, Human Organ, Transplant; Health Ethics, Legal Framework.

1. INTRODUCTION

Organ donation and transplantation represents one of the best clinical and the most cost-effective care when compared with alternative available treatments. Organ transplantation is expanding

globally and has become a very important treatment for the increasing end-stage renal disease (ESRD) population in Nigeria.[1]Until the 20th century, the concept of organ donation and transplantation remained an unconceivable thought, an attempt of which bordered on foolhardiness.[2]Yet recently, it is indeed one of the major innovative achievements of modern medicine. This procedure is to a great extent one of the means of saving and enhancing the quality of people's lives but it can only be performed when free and informed consent is given.[3]

One of the key ethical considerations in organ donation and transplantation is the issue of consent. A writer posits that free and informed consent is a principle founded on patient autonomy that reflects the patient's right to influence decisions about his or her body.[4] Organ donation and transplant though not a usual form of medical treatment in Nigeria, is swiftly gaining recognition and becoming a popular and most recommended form of life sustaining treatment.[5]

In Nigeria, the first successful organ transplant carried out was a kidney transplant performed at St. Nicholas Hospital, Lagos in 2001.[6] However, at the time, there was no legislation in place regulating such a procedure. Nigeria has come a long way in ensuring that it is not left behind in current socio-economic development, particularly with regards to healthcare issues, by enacting a National Health Act7 to regulate issues emanating from

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1 U Ifeoma, 'Organ Transplantation in Nigeria' *Transplantation* April (2016) (100) 695 https://journals.lww.com/tranplantjournal/fulltext/2016/04000/organ_transplantation_in_nigeria.1.aspx accessed 13 August 2022

2 D Lamb, *Organ Transplants and Ethics* (Routledge 1990) 12.

3 M Stauch and K Wheat with J Tingle, *Text, Cases and Materials on Medical Law and Ethics* (4th edn, Routledge 2012) 502; Convention on Human Rights and Biomedicine (CHRB) 1997, art 5; Universal Declaration of Human Rights 1948, art 7; International Covenant on Civil and Political Rights 1966, art 5.

4 I O Iyioha, *Pathologies, transplants and indigenous norms: An introduction to Nigerian Health law and Policy. Comparative Health Law and Policy: Critical Perspectives on Nigerian and Global Health Law* (Ashgate, UK 2015) 7.

5 *Ibid* 9

6 https://Saintnicholashospital.com accessed on the 20th of November 2022

organ donation and transplant. Although this procedure has been widely accepted in contemporary times all over the world as a safe medical procedure, it is fraught with major challenges in Nigeria, ranging from the ineffectiveness of existing frameworks in place to ethical, social and religious beliefs challenges.

The article examines Nigerian current law and practice in place in this regard, with a view to determining if it is compatible and consistent with the international standard of ethics and human rights, the work also gives a general overview on the evolution of organ donation and transplantation, exploring the doctrine of informed consent as a fundamental requirement to the entrenchment of the right to adequate health care. The article also makes references to the United Kingdom and United States of America as they are good examples of countries that have advanced in the science of organ donation and transplant and whose legislations have over time evolved in that respect.

The article concludes with suggestions and recommendations that will improve the general practice of organ donation and transplantation in Nigeria as well as recommendations that will enable an amendment of the law to ensure the effectiveness of the doctrine of informed consent in organ donation and transplantation in Nigeria.

2. THE EVOLUTION OF ORGAN DONATION AND TRANSPLANTATION

Over the years, as organ transplantation evolved, there were recorded accounts of the many attempts made at achieving successful organ transplantation.[7]In 300 BC, there were accounts of some Christian Arabs saints, Cosmas and Damian who were said to have transplanted a leg to replace a diseased leg successfully.[8]The development of effective immunosuppressant in the early 1900s made the procedure of organ transplantation more achievable. This

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7 B J A, Bailey and Love, *Short Practice of Surgery: Transplantation* (Vol 183, 24th edn, Arnold Publishers 2004) 206

8 A A Bakari , E A Nwankwo , S J Yahaya , B M Mubi and B M Tahir , 'Initial Five Years of Arterio-Venous Fistula Creation for Haemodialysis Vascular Access in Maiduguri, Nigeria' *Internet Journal of Cardiovascular Research (*2007) Vol 4, No 2, p.21.

procedure requires certain degree of skillfulness and specialty as it requires the collaboration of several professionals like surgeons, immunologists, anesthetics and physicians.[9]

3. CONCEPTUAL CLARIFICATION

3.1 Transplantation

Transplantation is the removal of living, effective cells, tissues, or organs from the body to be transferred either back into the same body or into a different body.[10] It is a surgical procedure in which organs are extracted from one body and transferred to another body or from one part of a body to another part of that same body. It can also be defined as a surgical procedure that requires the removal of an organ, body parts or tissue from a person (a donor) to another (the donee) in order to replace a frail or missing organ.[11] An author described transplantation as a unique way of affirming and sharing one's humanity.[12]

Transplantation has evolved over time to be the best choice of treatment available.[13] The evolution of transplantation was slow paced due to complications arising from the inability of the recipient's body to control the rejection of the organ which sets in after transplantation. But all this has now been put to rest with the development of effective immunosuppressant medications.[14] Thus, this brought about a breakthrough in organ rejection in transplantation thereby leading to the rapid expansion of cadaveric organ transplantation and making transplantation the best choice of treatment for survival.

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9 H Kashi, 'Organ Transplantation' in M Micheal, N Henry, N Jeremy and Thompson (eds), *Clinical Surgery* (1st edn, W B Saundersan Imprint of Harcourt Publishers Ltd 2001) 193.

10 M Hertl, P S. Russell, 'Overview of Transplantation' (Merck Manual, Consumer Version, 2016) < http://www.merckmanuals.com/home/immune-disorders/transplantation/overview-of-transplantation> accessed 13 August 2022

11 Transplant Association Nigeria, 'Transplant Information' (Transplant Association of Nigeria) http://transplant.org.ng/information.php# accessed 13th August 2022

12 D. Price, *Legal and Ethical Aspects of Organ Transplantation* (Cambridge University Press 2000) 1.

13 *Ibid* 10

14 *bid* 3

There have been a lot of transplantations in the past, both between animals and between humans but the first ever success of this in humans could be traced to the first human kidney transplant carried out between identical twins in 1954 by Dr Joseph Murray in Boston.[15]Transplantation is not only limited to organs; tissues like bones, tendons, cornea, skin, heart valves, hairs and veins can also be transplanted because they also offer life prolonging and lifesaving surgical treatment.[16]

Globally, the kidneys are known to be the most commonly transplanted organs then subsequently, the liver and then the heart. Other various organs that could also be transplanted include the lungs, pancreas, intestine and thymus.[17]Due to the nature of the invasive procedure involved in transplantation, it is no doubt bound to raise ethical issues. Ethical issues concerning the appropriate definition and determination of death, the quality of consent given for the transplantation of an organ, payment for transplant organs and organ commodification and trafficking.[18]

3.2 Organ Donation

General body functions are conducted by organs as each organ has an identifiable and specific function which it performs. An organ, for instance like the heart, liver, lungs and stomach is made of several categories of tissue and hence several categories of cells too.[19] An organ is any part of the human body modified by its structure to perform any particular vital function. An organ also includes the eye and its accessories, but with the exclusion of the skin and appendages, flesh, bone, bone marrow, body fluid, blood or a gamete.[20]

Organ donation is the process of donating a vital organ to a donee (recipient) whose own organ has failed or is failing. In this

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15 *Ibid* 3
16 *Ibid* 12
17 Ibid
18 Ibid
19 Ibid
20 A Villa-Forte, 'Tissues and Organs' (Merck Manual, Consumer Version, 2016) <http://www.merckmanuals.com/home/fundamentals/the-human-body/tissues-and-organs> accessed 13 August 2022

regard, the first organ to be transplanted was the kidney in the 1950s; followed by the heart, liver and pancreas transplantation in the 1960s; and lung and small bowel transplantation in the 1980s. Organs donated can either be from a deceased/cadaveric donor or a living donor. Organ donors usually may either be living, or brain dead. For the donor to be brain dead, he must have received either a traumatic or pathological injury to the part of the brain in control of his heartbeat and breathing.[21]

In the past, the notion of brain death was immaterial because as the brain dies, so does the rest of the body (that is, as the breathing stops similarly the heart beat stops). But with the advent of artificial means such as ventilators and medications, breathing and heart beats are now temporarily maintained even when all brain activity ceases. Brain death is the permanent loss of brain movement which results to a person's inability to breathe or maintain other important functions on their own and accordingly, all awareness and capacity for thought is lost permanently.

A person is considered legally dead once the diagnosis for brain death is confirmed. However, before such confirmation is made, all treatable conditions that could slow brain functions like low blood pressure, toxic drug usage, low body temperature and sedative overdose but to mention a few; are to be checked for so as not to mistakenly arrive at a wrong diagnosis of brain death. Since, brain death means that the brain stops working, there are some specific criteria which must be ensured to confirm brain death and they are mostly identified during the doctor's physical examination of the person. These criteria include, lack of movement and specific responses or reactions to tests being carried out on certain reflexes, lack of reaction to light by the eyes and lack of an attempt to breathe. Basically, the reason why tests are carried out is to confirm brain death thereby making organ donation a possibility. Again, for the viability of the organs intended for donation, tests such as electroencephalography (commonly known as EEG) and imaging tests are occasionally used especially after tragic head injury accidents. This is because no brain wave is shown in the former and

[21] National Health Act 2014, Part VII, s 64

no blood flow to the brain is detected in the latter when a person is brain dead. These criteria are usually rechecked 6 to 24 hours later and after it is confirmed twice that the brain is not functioning, then a diagnosis of brain death can be made.[22]

A person once declared brain dead can be considered for organ donation. Although some organs such as the kidney, lung and segment of liver, can be donated during life. Most organ and tissue donations worldwide come from people who have expressed an altruistic desire during their lifetime to donate upon their death. This they often do formally by registering their wish to donate on the Organ Donor Register or by discussing the subject with their relatives and loved ones.[23]The success rate of organ transplantation has given rise to the demand for more organs following which two categories of donors have emerged.

3.3 Categories of Donors

Organs can be donated either by living persons or deceased/dead persons. Therefore the types of organ donors are generally classified into two; the living organ donors and the cadaveric/deceased organ donors:[24]

3.3.1. Living Organ Donors

In this type of donation, 'only an organ, or part of an organ which its remaining organ can regenerate or take on the workload of the rest of the organ' is donated as the donor still remains living after the donation. This type of donation may be in form of a single kidney donation, partial donation of liver or small bowel.[25]Worldwide, this is the most common type of organ donation as transplants from living donors reduces the chances of organ rejection and subsequently boosts more success rates.[26]

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22 Transplant Association Nigeria *(*n 11)

23 K Maiese, 'Brain Death' (Merck Manual , Consumer version, 2016) <http://www.merckmanuals.com/home/brain,-spinal-cord,-and-nerve-disorders/coma-and-impaired-consciousness/brain-death> accessed 14 August 2022

24 Ibid

25 A A Bakari, U A Jimeta, A A Mohammed , S U Alhassan, and E A Nwankwo, 'Organ Transplantation: Legal, Ethical and Islamic Perspective in Nigeria' 18 (2*) Niger J Surg,* (2012) , p. 53.

26 Transplant Association Nigeria (n 11)

3.3.2. Cadaveric/ Deceased Organ Donors

Organs from cadaveric donors mostly come from people who previously agreed to donate their organs by indicating their willingness to donate either in a written document or by making their wishes known to their close relatives. It may also be obtained by approval from the deceased's closest relative when the deceased's wishes are unknown. The donors could be healthy persons who have been involved in a major (fatal) accident or persons as who died as a result of a medical disorder.[27] Deceased/cadaveric donors are donors whose organs are kept viable by ventilators or other mechanical life supporting mechanisms for transplantation after been declared brain dead. In view of the growing demand for organs, the cadaveric/deceased donor program is essential to supplement the donor pool as the living donor program alone is not adequate to meet this need. Setting up a deceased donor program in Nigeria will surely be fraught with many challenges which may arise from cultural, social and religious beliefs, public acceptance of deceased organs and organ allocation problems to mention a few.[28]Cadaveric organ transplantation only takes place with proper pre-mortem consent from the deceased, organs are extracted from the deceased's body for transplantation after death. Prior to their death, individuals could choose to either opt-in or opt-out of donating their organs for transplantation after death. An opt-in refers to where proper pre-mortem consent is given by a deceased or the relatives allowing the extraction of his or her organs for transplantation after death. An opt-out on the other hand, occurs when there is an objection to extraction prior to death by the deceased or post mortem by the relatives.

However, in some jurisdictions like Spain, Belgium and Austria, if no objection is raised pre or post-mortem, there will still be removal of organs because consent will be presumed for the deceased and it will be implied that the deceased has presumably consented to donation by not objecting.[29]This system of presumed

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27 Lamb *(*n 2) 504

28 Ibid 10

29 A. Rithalia, et al. , 'Impact of Presumed Consent for Organ Donation on Donation Rates: A Systematic Review' (2009) 340 *BMJ* p. 3162

consent as it is often 'fair labelled'[30] by legislators, is understood to be an unstated or implied wish to organ donation by a person where there is no record of an objection. Under critical examination, presumed consent could be likened to an opt-in system because they both have defining features in common. Under both systems, organs can be extracted once there is no objection, this infers that the silence of the deceased is an implied consent to extract. A presumed consent system is more or less one and the same with an opt-out system.

Presumed consent is a form of consent to cadaveric organ donation which is in practice in some countries. Some countries like France passed this form of consent into law to boost the advancement of transplantation and also enhance the procurement and donation rates of organs to cater for the greater demand in organs which is not at par with the rate of supply.[31] Many countries now rely on cadaveric organs to meet the demands of organ shortage. For instance, Spain have met most of the demand for kidneys in their country relying on cadaveric organs.[32] Cadaveric organ donation is rapidly gaining wide recognition probably because it minimizes dangers of injury and also enables extraction of all organs in the body at once. This is possible primarily due to the fact that the organs extracted are from the deceased, not a living donor. Likewise, this form of organ donation has presently been used in achieving around two-thirds of the kidney transplants done in the United Kingdom.[33]

4. TYPES OF HUMAN TRANSPLANTATION

Obviously there are more recipients of human organ than there are donors. And this is what makes the donations a very difficult issue that attracts serious legal and ethical implications. All the laws

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30 Austen Garwood-Gowers, 'Time to Address the Problem of Post-Mortem Procurement of Organs for Transplantation Occurring without Proper Pre-mortem Consent' (2013) 20 (4) European Journal of Health Law 383, 386

31 G. Nowenstein, 'Nemo Censetur Ignorare Legem? Presumed Consent to Organ Donation in France, from Parliament to Hospitals' In Austen Garwood-Gowers, John Tingle and Kay Wheat (eds), *Contemporary Issues in Healthcare Law and Ethics* (Elsevier, 2005) 173.

32 A G Gowers, *Living Donor Organ Transplantation: Key Legal and Ethical Issues* (Ashgate and Dartmouth 1999) 22.

33 Stauch and Wheat and J Tingle (n 3) 519.

dealing with the issue prohibit any commercial dealing in human organ, and in some countries the donation is made through informed consent[34] while in others the consent is presumed to have been given before death. Yet in other countries the family of the diseased are allowed to decide on the donation.[35] The aim of this segment is to provide the reader with different type of organ donation and transplant. There are various types of human transplant:

a) ***Xenotransplantation:*** is any procedure that involves transplantation, implementation or infusion into human recipient of either: live cells, tissue, or organ from non-human animal source or human body fluids, cells, tissues or organs that have had ex vivo contact with live nonhuman animal cells.[36]

b) ***Living donor homotransplantations:*** is a situations where a live donor of species X will allow his organ to be given to a recipient of species X. in this case a person voluntarily donate his organ in order to relief patient.

c) ***Post-mortem homotransplantations:*** from a dead donor of species X into a recipient of species X. here the position of the law in UK now is that a person is presumed to have given consent before he died unless there is an express objection or if the family can prove that he has indicated his objection.

5. THE NATONAL HEALTH ACT: A CRITICAL REVIEW ON THE LEGALITY OF ORGAN HARVESTING IN NIGERIAN

5.1. *A Critical Overview*

In Nigeria and other sub-Saharan African countries, organ donation and transplantation is far from being a routine form of medical treatment, organ donation networks and infrastructures are not yet well-developed in Nigeria. The sub-optimal transplantation

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34 Like Netherland in Article 8 of Organ Donation Act.

35 Abadie A. and Gay S. The Impact of Presumed Consent Legislation on Cadaveric Organ Donation: A Cross Country Study. <albertoabadie@harvard.edu> accessed 14 August 2022

36 Available at <www.fda.gov/biologicsbloodvaccines/xenotransplantation/default.htm.> accessed 14 August 2022

capacity in Nigeria is not able to trigger a high demand for organs that will raise concerns in relation to supply. This immunity is only limited to the problems of organ shortage, but not from the problems of transplant tourism. In healthcare jurisdictions where organ transplantation has become a routine form of medical treatment, some of the debates have ranged from appropriate structures and frameworks for increasing the supply of needed organs, to liability issues arising from the destruction or misdirection of donated organs.[37]

In Nigeria, matters concerning human organ donation and transplantation are regulated by the National Health Act.[38]The Act has many laudable initiatives such as the prohibition of the provision of organ transplant services except in a duly authorized hospital and with the written permission of the medical practitioner in charge of clinical services at that hospital. For that purpose, the National Tertiary Hospital Commission is empowered to develop criteria for the approval of organ transplant facilities, as well as the procedure for securing such approval. The Act further provides that only duly qualified and registered medical practitioners are authorized to render transplantation services.

Furthermore, the Act prohibits any form of commercialization of human organs, thus it is an offence punishable with fine, or imprisonment or both for a person who has donated a tissue or organ to receive any form of financial reward, except reimbursement for reasonable cost incurred by the donor in connection with the organ donation. The Act also establishing the two sources of organs for transplantation, that is, the living and cadaveric donors discussed above. Generally, the Act provides a framework for the regulation of the removal and use of human organs donated for transplantation.[39]Part VI of the Act provides for the control of the use of blood, blood products, tissue and Gametes in humans. A tissue under the Act refers to "human tissue, and includes flesh, bone, a

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37 R N. Nwabueze, 'Organ Donation and Transplantation' *Law Explore Administrative Law* 2016 available online at <https://lawexplores.com/organ-donation-and-transplantation/> accessed14 August 2022

38 *Ibid* n 21

39 *Ibid* Part VI, s 47 - 57

gland, an organ, skin, bone marrow or body fluid, but excludes blood or a gamete".[40]

5.2 The issue of consent under sections 48 and 51 of the Act

Just as applicable under the common law, consent is the guiding principle for living donation under the Act. The fact that informed consent is only mentioned in relation to tissues, blood and blood products without the inclusion of organs under the Act82 is worrisome and it is probably as a result of the interpretation of a tissue under the Act to include organs.[41] This interpretation ends up distorting the clarity and certainty of the information which the Act seeks to convey with a resultant effect of a non-inclusion of the word *organs* in the heading in part VI and in section 48 (1) (a) of the Act. Although the Act also defined an organ, it is still inappropriate that a tissue is interpreted to include organs. Under proper analysis, it should be the other way round as scientifically, organs are made up of tissues and besides, tissues are regenerative in nature while organs are not.[42] Thus, the issue relate to the provision of Section 48, 51 and 52 of the Act. Particularly Section 48 provides:

> *"(1) Subject to the provision of section 53,[43] a person shall not remove tissue, blood or blood product from the body of another living person for any purpose except; (a) with the informed consent of the person from whom the tissue, blood or blood product is removed granted in prescribed manner; (b) that the consent clause may be waived for medical investigations and treatment in emergency cases; and (c) in accordance with prescribed protocols by the appropriate authority."*[44]

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40 *Ibid* Part VII, s 64

41 *ibid* s 48 (1) (a)

42 *ibid* s 64

43 S.53 (1) it is an offence for a person:- who has donated tissue, blood or a blood product to receive any form of financial or other reward for such donation, except for the reimbursement of reasonable cost incurred by him or her to provide such donation.

44 National Health Act, 2014 (SB215)

According to the above provision of the law, the need for consent may be waived in cases of emergency, investigation and treatment of disease. The implication here is that once any available personnel is satisfied that there is a case of emergency or any related issue; he can act for the purposes provided by the law. Consent to medical treatment is a human right issue. It relates to right to privacy, personal liberty and right to religion. Is beyond ethical issue

Many believe that a room has been created for people's right to be violated. Even though the current train shifts towards presumed consent whereby making donation the default position, from which everybody would retain the right to opt out during their life time.[45] However, in Nigeria is only in an emergency situation that organ may be removed without the requirement of obtaining consent according to the Act. Njemanze, who is a specialist in Neurocybernetics pointed out that Section 48 (b), waives the right to consent in an emergency situation. He argues that, it is forbidden in medical practice to waive the right of consent under whatever circumstances for living or even dead persons. He further assert that even when a living patient is unconscious or unable to make decisions, that right of consent is temporarily transferred to his next-of-kin, guardian or parents in the case of a child, but is never waived. I will agree with the learned professor to some extent. Consent must be obtained from both living and non-living donor like he said.

One will tempt to ask question here, is the argument of the learned professor correct and is there any similar provision in other jurisdictions? In UK for example, there is Human Tissue Act[46] which regulate the donation of human organ. Although the issue of consent is outside the scope of the Act, it is covered by the common law and the mental capacity Act[47] where requirement of consent for living donor are set out in Section 33 and 34 of human tissue Act and 9-14 of the regulation.[48] It is therein made to be an offence to remove or

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45 Cartwriht-shamoon M. Human Rights and Presumed Consent for Organ Donation in the UK.Ulster Med journal 206. Available at< www.ncbi.nil.nih.gov> accessed 14 August 2022

46 Human Tissue Act 2004

47 Mental Capacity Act (MC Act) 2005

48 The Human Tissue Act (Quality and safety for Human Application) Regulation 2007

use any organ or part of the body of a living person for transplantation unless the requirement of consent is satisfied and an independent assessor must conduct an interview with the donor, and if somebody gives the consent on behalf of the donor it must be checked.[49]This position reiterates the argument that consent is an uncompromised requirement for donation of human organ. And I don't think this is the intention of the National health Act.

Another important issue worth noting is that, if organ can be taken without consent in an emergency situation, what is the meaning of emergency within the context of this law? In the Act, "emergency situation" was not defined, which means that it's only the doctor, who could decide whether there is an emergency and thereby authorize the removal of anybody's organ, without consent. The Chairman, Global Prolife Alliance (GPA), Prof. Philip Njemanze, condemned this section of the Act, describing it as a way to kill Nigerians. He stated that Nigerian population would be reduced through secret trading on human organs by international financial giants to save the lives of their citizens, while warning that human organs, such as the heart, liver, kidney, lens, cornea, ovarian eggs, and sperms and so on, would be secretly transplanted in designated hospitals. The fear for Nigerians is that some certain medical practitioners at the designated hospitals had been empowered by the law to remove these vital organs of sick Nigerians who are on admission. This is so because, the law made provision for the right of consent for patients, and it in one hand take away such right from patients, in times of some certain medical emergency conditions.[50]

In his view, one of the Nigerian prominent legal practitioners Femi Falana shares the same view. He said: "We wish to point out that the National Assembly has violated the fundamental rights of Nigerians to life, human dignity, privacy and freedom of thought, conscience and religion by authorizing medical doctors to remove

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49 Code of Practice 2 Donation of Solid Organ for Transplantation. Available at <www.hta.gov.uk.> accessed 14 August 2022

50 Section 33 of the Constitution of the Federal Republic of Nigeria 1999 (As amended) Cap C23 LFN 2004 Therefore, Section 51 is inconsistent with the Right to Life of the Fundamental Rights under the 1999 Constitution of the Federal Republic of Nigeria.

organ of a living persons in Nigeria without their informed consent.[51] The learned practitioner made reference to Section 48 and 51 of the Act.

On the question of human right, the case of *Denloye v Medical & Dental Practitioners Disciplinary Tribunal* is illustrative here. The Apex Court of Nigeria held[52]that failure to seek and obtain a patient's informed consent before administering a blood transfusion on him constituted a violation of his fundamental human rights to privacy[53] and right to freedom of religion and conscience.[54] The Supreme Court held that the patient's constitutional right to object to medical treatment or, particularly, as in this case, to his tissue, blood or blood products or his organ being taken away from his body is founded on fundamental rights protected in the above mention provision of the law and right to freedom of thought, conscience and religion under section 38.[55] The Court further held that the right to privacy "implies a right to protect one's thought conscience or religious belief and practice from coercive and unjustified intrusion; and, one's body from unauthorized invasion. The right to freedom of thought, conscience or religion implies a right not to be prevented, without lawful justification, from choosing the course of one's life, fashioned on what one believes in, and a right not to be coerced into acting contrary to religious belief. The limits of these freedoms, as in all cases, are where they impinge on the rights of others or where they put the welfare of society or public health in jeopardy. The implication of the highest court's decision is that rights to privacy, freedom of thought, conscience or religion mean that an individual should be allowed to choose a course for his life, unless there is a

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51 Falana points to danger in new National Health Law Nigerian News Stand 30 December, 2014.Available at <http://nigerianewsstand.com/falana-points-to-danger-in-new-national-health-law/ > accessed 13 August 2022

52 Medical and Dental Practitioners Disciplinary Tribunal v Dr. John Emewulu Nicholas Okonkwo (2002) AHRLR 159

53 Section 37 Constitution of the Federal Republic of Nigeria 1999 as amended Cap C23 LFN 2004

54 Ibid Section 38

55 Effiong O. National Health Bill: Experts argue over Harvesting Organs from Patients without Consent. <http://trends.ng/national-health-bill-experts-argue-over-harvesting-organs-from-patients-without-consent/.> accessed 13 August 2022

law democratically justifiable to infringe on such right.[56] If section 48 of National Health Act means removing one's organ in case of emergency without consent, the Act is in flagrant violation of the above provision of the law.

6. ADVANCED JURISDICTIONAL LEGAL FRAMEWORK ON ORGAN HARVESTING

In the United Kingdom, the position of the law in relation to living or cadaveric organ donation is that, a donor must always consent to the removal of an organ free from coercion or undue influence.[57] The United Kingdom Human Tissue Act 2004 was enacted 'to provide a consistent legislative framework for issues relating to whole body donation and the taking, storage and use of human organs and tissue'.[58] The Human Tissue Act 2004 repeals and replaces the Human Tissue Act 1961, the Anatomy Act 1984, and the Human Organ Transplants Act 1989. The Act came into existence as a result of some scandalous happenings which were against public policy. These scandals includes, the retention of organs scandals at Bristol Royal Infirmary[59]and the Royal Liverpool Children's' Hospital.[60] The Alder Hey scandal (which was the subject of the Redfern Report of the Royal Liverpool children's inquiry) involved the extraction, examination and retention of body parts and organs of dead children without the consent of their parents. The parents and guardians who actually remembered consenting to the storage had no idea about what they were consenting to as the doctors did not disclose or give them proper information on the reason for their consent thus, the consent obtained was not an informed one and therefore invalid.[61]The outcome of the scandal was a report which recommended for an introduction of the fundamental principle of

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56 Human Tissue Act 2004 (n 46)

57 Human Tissue Act 2004, s 1

58 I*bid* n 34,

59 United Kingdom Central office of Information, 'The report of the Bristol Royal Infirmary Inquiry' (Central Office of Information, London, 2001).

60 Redfern M, 'The Royal Liverpool children's inquiry Report (Redfern Report)' (Department of Health, the Stationary Office, 2001) <http://www.rlcinquiry.org.uk/> accessed 14 September 2019

61 *AB v Leeds Teaching Hospital NHS Trust* [2004] EWHC 644

informed consent for the lawful extraction and retention of body parts and organs.[62]

The underlying principle behind the 'lawful storage and use of human bodies, body parts, organs and tissue and the removal of material from the bodies of deceased persons is **consent**,[63] This principle which is deeply rooted in the law of most western societies stems from a deep rooted fact that all human beings have a right to their autonomy and self-determination and a law that encourages the forceful extraction of organs for the benefit of others will be inhumane, thus, unethical and inconsistent with human rights.[64]The failure of a doctor under British law to carry out any medical intervention without an 'appropriate consent' is unlawful[65] and makes him liable for battery[66] and assault[67] both in civil and criminal law respectively.[68]Bell also agrees as highlighted by the Human Tissue Act 2004 that an 'informed and highly specific consent' as a fundamental principle should be relied upon as respect for autonomy is one of the founding ethical principles of medical intervention.[69]The doctrine of informed consent is an established

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62 Rodgers, M E, 'Human bodies, inhuman uses: Public reactions and legislative responses to the scandals of bodysnatching' in Austen Garwood-Gowers, John Tingle and Kay Wheat (eds), *Contemporary issues in healthcare law and ethics* (Elsevier 2005) 151; Hall D, 2001. 'Reflecting on Redfern: What can we learn from the Alder Hey Story?' (2001) 84 (6) Archives of Disease in Childhood 455 <http://adc.bmj.com/content/84/6/455.full> accessed 13 August 2022

63 *Airedale NHS Trust v Bland* [1993] AC 789 (Goff LJ); Explanatory note 4 to the Human Tissue Act 2004

64 Convention on Human Rights and Biomedicine [1997], art 10; European Convention on Human Rights [1950]; art 8; *Schleondorff v Society of New York Hospital* (1914) 105 NE 92 (Cardozo J).

65 Ibid n 34 s 1, 2, 3, 6.

66 *Wilson v Pringle* [1986] 2 ALL ER 440; *Re F (Mental Patient: Sterilisation)* [1990] 2 AC 1.

67 Offences against the Person Act 1861, s 18, 20.

68 T Elliott, 'Body Dysmorphic Disorder, Radical Surgery and the Limits of Consent' (2009) 17 Med L Rev 149; PDG Skegg, *Law, Ethics and Medicine* (Clarendon Press 1984), *Airedale NHS Trust v Bland* [1993] AC 789 (Mustill LJ); Human Tissue Act 2004, s 5.

69. M D Bell, 'The UK Human Tissue Act and Consent: Surrendering A Fundamental Principle to Transplantation Needs?' 32 (5) *J Med Ethics* 2006, p.283

precondition which must be present before the occurrence of any medical interference with the body.[70]

The American Uniform Anatomical Gift Act 1968, amended in 1987 and further amended in 2006[71]regulates organ donation and transplant in America and provides for all ethical requirement that must be complied with as well as the fundamental principle of informed consent, which importance cannot be overemphasized.[72] This was exemplified in the American case of *McFall v Shimp.*[73] In the above case, a patient requiring a bone marrow donation sought an injunction to compel his cousin who though a suitable donor, declined to donate his bone marrow to make the transplantation. The patient's cousin who had volunteered for a compatibility test declined undergoing further tests after being found to be a suitable donor. The court held that the decision to undergo such a medical procedure rests with the individual whose body part is to be removed. Thus, compelling such an individual to submit to bodily intrusion will defeat the sanctity of life of that individual and also impose a rule which will have no limits.[74]

Voluntariness is therefore a major requirement for a valid consent. The essential elements of a valid consent include, firstly, the patient must have the mental competence to make the decision.[75]Basically, a person is presumed to have the capacity to consent or refuse medical treatment. However, a person will be seen to be unable to make a decision if such a person in his decision making process cannot understand, retain[76] and use[77] the information

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70. Convention on Human Rights and Biomedicine [1997], art 5; Universal Declaration of Human Rights 1948, art 7; International Covenant on Civil and Political Rights [1966], art 5.

71 Uniform Anatomical Gift Act 2006 <http://uniformlaws.org/Act.aspx?title=Anatomical%20Gift%20Act%20%282006%29>accessed 13 August 2022

72 A Maclean, *Autonomy, Informed Consent and Medical Law – A Relational Challenge* (CUP 2009).

73 (1978) 10 Pa D &C (3d) [90].

74 *McFall v Shimp* [1978] 10 Pa D & C (3d) [90] (Flaherty J).

75 *Re MB (Medical Treatment)* [1997] 2 FLR 426 (CA) (Butler-Sloss LJ).

76 *An NHS Trust v T (Adult: Refusal of Medical Treatment)* [2004] EWHC 1279 (Fam); *Local Authority X v MM* [2007] EWHC 2003 (Fam) (Munby J).

77 *R v Collins and Ashworth Hospital Authority ex p Brady* [2000] Lloyd's Rep Med 355 (Maurice Kay J); *B v Croydon Health Authority* [1994] 2 WLR 294.

given and also cannot communicate his decision whether by talking or gesticulating.[78] In addition, it is suggested that in assessing capacity, the values and beliefs of the person being assessed be considered as some values and beliefs though respected by the person assessed may be seen or thought to be meaningless by the assessor.[79]

Secondly, the patient must consent to or refuse the treatment in question freely without duress or undue influence. This means that the consent must be given voluntarily as voluntariness requires the absence of any coercion.[80]

Thirdly, the patient must have been given sufficient information about the intended treatment.[81]The information given needs to explicitly and essentially state what is to be done and why it needs to be done and this is mostly deciphered from what the nature and purpose of a medical procedure entails.[82]

Furthermore, the English Mental Capacity Act (MCA) principles[83] provides that a person is assumed to have capacity unless it is established that he lacks capacity and that a person shall not be treated as unable to make a decision unless all practicable steps to help such a person to do so have been taken without success and that making an unwise decision does not make a person incapable.[84]In addition, any act or decision made on behalf of such a person must be made in his best interest and in a way that is less restrictive of the person's rights and freedom of action. With the advent of the MCA, guidelines on ways to determine capacity in relation to incapable adults were provided for and provisions were made for donees of a 'lasting powers of attorney' to take care of their personal care[85] and treatment and advanced decisions to refuse treatment made when they had capacity.[86] The MCA also provides for the powers of the

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78 Mental Capacity Act 2005, s 2, 3.

79 M Gunn , 'The Meaning of Incapacity' [1994] 2 *Med L Rev* p 8.

80 *The Centre for Reproductive Medicine v U* [2002] EWCA Civ 565.

81 *Sideway v Board of Governors of the Bethlehem Royal Hospital and the Maudsley Hospital and Others* [1985] AC 871.

82 A Grubb, *Principles of Medical Law* (2nd edn, OUP 2004).

83 Mental Capacity Act 2005, s 1

84 *Ms B v An NHS Hospital Trust* [2002] EWHC Fam. 429

85 Ibid n 60 s 9

86 *Ibid* n 60 s 24, 25, 26

court to make declarations as to the capacity or incapacity of a person[87] and the appointment of deputies to consent to treatment on behalf of the incapable patient.[88]

On the capacity of children to consent or refuse treatment, this could be quite tricky as it tends to be a bit complex. In accessing capacity with regards to children, the English age of majority is 18 years but for the purposes of giving a valid consent to medical treatment, minors who have attained the age of 16 years could consent.[89] Children under the age of 16 could consent to medical treatment if they are *Gillick Competent*. It was decided by Lord Fraser in *Gillick v Norfolk and Wisbech AHA*[90]that younger children below the age of 16 may be able to consent to medical treatment depending on their level of understanding. Thus, *Gillick Competence* follows that if a minor below 16 years is capable of understanding what is proposed and of expressing his or her wishes, any consent given by such a minor will be effective and valid. However, this is only in relation to consent and not refusal. A minor's refusal of treatment could still be overridden by the parents or persons in *loco parentis*[91] Like the case of a 16 year old girl suffering from anorexia nervosa and refusing treatment, the Court of Appeal held that section 8 of the Family Law Reform Act[92] did not confer an absolute right and could be overridden by the court exercising its inherent jurisdiction.[93]It is essential to note that in relation to children, the court usually adopts a paternalistic approach when it relates to refusal of treatment which has grave implications for continuity of life or health.[94] Where a doctor is not convinced of the capacity of a minor to refuse or consent to treatment, such a matter should be brought before the courts for a declaration. The importance of free and informed consent as a requirement covers both living donor and

87 *Ibid* n 60 s 15
88 *Ibid* s 16
89 Family Law Reform Act 1969
90 [1986] 1 AC 112
91 *Re R (A Minor) (Wardship: Consent to Treatment)* [1992] Fam. 11, CA
92 Ibid
93 *Re W (A Minor) (Medical Treatment)* [1993] Fam. 64, CA
94 *Re E (A Minor) (Wardship: Medical Treatment)* [1993] 1 FLR 38

cadaveric organ donor.[95] It is worthy of note that failure to ensure the enforcement and implementation of a free and informed consent could lead to an increase in organ commodification and trafficking. The success rate of transplantation has increased the demand for more organs to be made available and with this arose the evil of organ trafficking. There are cases where people have sold their organs for financial gain and benefits. Making offers and selling to the highest bidder and vulnerable patients buying at excessive costs just to survive. An example is the story of the 17 year old Chinese boy who contacted an illegal agency online to sell one of his kidneys so as to purchase mobile phones.[96]There has also been a recent case of two Chinese men who tried to sell their kidneys in order to purchase Iphone 6s cell phones but could not as the agent who brokered the deal failed to show up at the appointed hospital.[97] Such actions are unethical and inconsistent with international laws and treaties which seeks to protect both donor and donee.[98]

In most jurisdictions, the position of the law in relation to organ commodification and trafficking is very strict. For instance, in the United Kingdom, commercial dealings in human organs or material for transplantation is prohibited and anyone who engages in such is guilty of an offence.

7. CONCLUSION AND RECOMMENDATIONS

The point has been made that organ donation and transplantation is a medical procedure that involves bodily

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95 *Freeman v Home Office (N0 2)* [1984] 1 ALL ER 1036

96 Foreign Staff, 'Chinese student sells kidney for ipad' (Telegraph, 10 August 2012) <http://www.telegraph.co.uk/news/worldnews/asia/china/9466585/Chinese-student-sells-kidney-for-iPad.html> accessed 17 September 2019; Meredith Bennett-Smith, 'W Shangkun, Chinese teen who sold kidney to buy Ipad, too weak to face alleged harvesters in trial'(Huffington Post, The World Post, 12 August 2012) <http://www.huffingtonpost.com/2012/08/10/wang-shangkun-kidney-ipad_n_1764335.html> accessed 13 August 2022

97 NDTV Correspondent, 'Two men reportedly try to sell kidney for iphone 6s' (Gadgets 360, 16 September 2015) <http://gadgets.ndtv.com/mobiles/news/two-men-reportedly-try-to-sell-kidney-for-iphone-6s-740488> accessed 13th August 2022

98 The Declaration of Istanbul on Organ Trafficking and Transplant Tourism 2008; Convention on Human rights and Biomedicine [1997], art 21; Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, art 3 a.

interference. The procedure is not entirely new in Nigeria and some protective laws are already in place to protect willing donors which is an issue that cannot be overlooked, but there is a lot of room for improvement.

The article concludes with recommendations, firstly that an Ethics Committee and a National Organ Donation and Transplant Registry must be set up and maintained to keep proper records as well as monitor and regulate the procedure in Nigeria, the data base can also be used to easily evaluate success and plan on how to make improvement going forward.

It is important for the government to take steps to reduce transplantation tourism and the problem of national and international trafficking in human tissue and organs, especially considering the poverty and illiteracy index in the country, which may force the downtrodden to commercialize their organs or tissue without proper knowledge of what the procedure entails.

It is recommended that an amendment should be made to the National Health Act 2014 to clear grey areas that will reflect a detailed provision on informed consent. A law which will give better clarity and certainty and also aid better understanding of the principle of informed consent with regards to organ donation and transplantation.

It is recommended that the definition of 'consent' and 'the elements that constitutes a free and informed consent' should be included in the Act to offer a further safeguard statutorily. This will ensure the provision of a more detailed and robust interpretation of consent statutorily which will be achieved by addressing what constitutes a valid consent as it relates to capable adults, incapable adults and children. The particular section of law concerned with informed consent should be titled in accordance to what it seeks to clarify. It could be termed 'informed consent' or 'appropriate consent'.

Again, the concerned section should be given a broader or wider scope of definition to encompass all the elements and salient points mentioned above. The section should also go further to clarify the fact that unless these elements are met, a valid consent will not have been properly acquired and any person who performs any

health services with such a consent will be seen to have committed an offence under the law. It is recommended that the definition of a 'tissue' be amended to exclude organs so as to erase any misunderstanding or uncertainty that could arise in the interpretation of the definition of 'an organ' especially with regards to the principle of informed consent. It is further recommended that the Act also be modified to reflect the word 'organs' in both section 48 (1) (a) and in the heading in part VI of the Act.

The paper also recommends that section 55 of the National Health Act which provides for the donation of organs by deceased persons be amended to include a more practical and effective means of organ donation for deceased persons who wish to donate their organs after death. An effective means could be achieved either through the use of advance directives or Physician Orders for Life-Sustaining Treatment (POLST) documents. Advance directives are legal written agreements which may include a person's wishes or preferences for medical care or a secure power of attorney in which an ill person authorizes another person to make medical care decisions on his or her behalf. A physician orders for life-sustaining treatment (POLST) documents are written doctor's orders that reflects a person's preferences for health care. These documents are usually kept in the person's medical records to be used in determining the person's health care preferences and instructing health personnel in an emergency.[99]In some jurisdictions, people indicate their interest to donate on their driver's licence. While in some other countries it is mandated by law that citizens who wish to acquire a driver's licence state their wishes to donate or not before they get one.[100]

Some countries have actually gone far in deliberations on whether to enact laws ensuring the provision of such information as

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[99] E L Cobbs, K Blackstone, J Lynn, 'Legal and Ethical Concerns at the End of Life' (Merck Manual, Consumer version, 2016) <http://www.merckmanuals.com/home/fundamentals/death-and-dying/legal-and-ethical-concerns-at-the-end-of-life> accessed 14 August 2022

[100] P Walker, 'Driving Licence Applicants Asked to Join Organ Donor Register' (The Guardian, 31 July 2011) <https://www.theguardian.com/society/2011/jul/31/driving-licence-organ-donor-register> accessed 14th August 2022

one of the preconditions of citizens' international passports renewal.[101] These means mentioned above are some practical means of encouraging cadaveric organ donation which are functioning effectively in some jurisdictions and Nigeria could also consider these ideas with a view to modifying them to suit our local circumstances. In the alternative, the paper also recommends that Nigeria embraces the presumed consent form of cadaveric organ donation as it is one of the means of ensuring an increase in the supply of organs. Many countries like Chile, Israel and Singapore, to mention a few have taken the initiative to modify their laws to provide for the system of presumed consent as a form of consent for cadaveric organ donation.[102] Even though our progress in organ transplantation as a country is not record high, and we may feel that going into the presumed consent regime may be way above us, the problem of shortage will most likely arise to create problems in the future. Progressively, this is why laws are enacted not only for the pressing challenges of the moment but for most of the likely future challenges that may arise later. There is no doubt that Nigeria just like other jurisdictions will get to a stage in the future where her demands for organs will not be satisfied by the supply available. Hence, it will be good practice to ensure when that time comes, there will be a robust provision enacted to ensure more supply.

Lastly, the paper has observed that the issue of organ donation has generated lots of religious and cultural sentiments. This is because various cultural and religious groups see harvesting deceased organs for donation as a violation of the dead body and negates the sacredness and respect supposedly accorded to a dead body. This is also at variance with the precepts and teachings of some religions. This brings up the need for better awareness on the importance of such procedure by the National Orientation Agency

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101 Daily Mail, 'No Driving Licence until you say if you will Donate Organs' (Daily Mail Online, 30 July 2011) <http://www.dailymail.co.uk/news/article-2020613/No-driving-licence-say-donate-organs.html> accessed14 August 2022

102 A Zuniga-Fajuri, 'Increasing Organ Donation by Presumed Consent and Allocation Priority: Chile' (2015) 93 (199-201) Bulletin of the World Health Organization <http://www.who.int/bulletin/volumes/93/3/14-139535/en/> accessed14 August 2022; C A J, 'Points Mean Prizes: Priority Points, Preferential Status and Directed Organ Donation in Israel' (2014) 3 (1) *Isr J Health Policy Res* 8

and other non-governmental organizations working in this area, people should be made to understand the essence of this procedure which is principally life prolonging and lifesaving. For the protection of adherents of any religious group that forbids cadaveric organ donation, a law could be put in place for their protection borrowing a leaf from Singapore where the law is couched in such a way as to protect the rights of the Singaporean Muslims who have registered their intention to donate.[103]

[103] Department of Health, 'The Potential Impact of An Opt 0ut System for Organ Donation in the UK, An Independent Report from the Organ Donation Taskforce' (Department of Health, UK, 2008) <http://www.nhsbt.nhs.uk/to2020/resources/ThepotentialimpactofanoptoutsystemfororgandonationintheUK.pdf> accessed 14 August 2022