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MUNICIPAL SOLID WASTE MANAGEMENT AND THE RIGHT TO ENVIRONMENT: PERSPECTIVES FROM WEST AFRICA

Kemi Omodanisi and Irekpitan Okukpon*

ABSTRACT

This paper is a comparative analysis of Municipal Solid Waste Management in West Africa focusing on Ghana, Mali and Nigeria. The paper offers a rich discussion on Municipal Solid Waste, (hereinafter referred to as MSW), its negative impacts, possible benefits and missed opportunities due to mismanagement of the same. The discussion focuses on both international and domestic legislation of the case study states on MSW and the right to environment. Inevitably, this extends to policy considerations in as far as they impact on MSW management, and to recommendations intended to enable the case study states realise the benefits of a proper MSW management system that is in line with global standards and the right to clean and healthy environment.

1.0 INTRODUCTION

Historically, proper management of Municipal Solid Waste (MSW) was not an issue; considering that major elements of waste were wood, food waste and

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vegetables which were basically domestic and mostly decomposable.[1] More so, the absence of industries and relatively low human population amounted to little generation of waste, which did not necessitate waste management systems.[2]

However, with an increase in population density over time, there was a corresponding increase in the generation of waste, which necessitated viable waste management solution. The Romans who, as pioneers of the waste management system, organized a team to collect waste generated in households and streets for disposal, first provided this solution.[3]

Globally, waste generation has been on the increase. In 2020, the World Bank recorded a generation of 2.24 billion tonnes of solid waste amounting to a footprint of 0.79 kilograms per person per day.[4] This record has an annual increase expectancy of 73% from 2020 to 3.88 billion tons in 2050.[5] This situation has severe negative impacts, and poses serious hazards on human health. It also breaches the right to a healthy environment for citizens especially in developing countries where the management of MSW remains a Herculean task.[6]

The problem of managing MSW remains an issue in West Africa. Just as other climes, authorities of large and small cities struggle to effectively collect and dispose the snowballing amount of MSW arising from uncontrolled, unplanned urbanization and population growth.[7] In an effort to manage MSW, most West

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1 Bello I and Kabbashi N A, 'Solid Waste Management in Africa: A Review' (International Journal of waste Resources2016)6(2) <https://www.Solid_Waste_> [Accessed 1 July 2020]

2 *ibid*

3 Cleary J, 'Life Cycle Assessment of Municipal Solid Waste Management Systems: A Comparative of a Selected Peer- Reviewed Literature' (2009) Environment 35: 1256-1266

4 The World Bank, 'Solid waste Management' (2020) <Solid Waste Management (worldbank.org)> [Accessed 21 July 2021]

5 *ibid*

6 *ibid*

7 Tuani E M, 'Managing Urbanisation and Waste Disposal in West Africa, A Case Study of Oblogo Accra-Ghana' (2009)

African countries, in line with international standards on waste management, adopt various measures that include legislative measures.[8] These countries provide legislative frameworks that include constitutional recognition of a right to a clean environment.

However, the level of recognition of this right in the management of MSW differs from nation to nation. The right to a clean and healthy environment is recognized in some states as a justiciable fundamental human right upon which other rights are dependent. However, other states consider it to be a merely directive principle of state policy, expressed in the nature of duties on a state without corresponding rights on the citizens.

This paper considers the effects of MSW on human health and the environment. It also looks at the attendant treaties which provide the blueprint of action for the management of this waste. Part 1 introduces this paper. Part 2 provides a general conceptualization of MSW. Part 3 conceptualizes the right to a clean environment in relation to MSW Management. Part 4 considers international and sub-regional efforts in managing MSW and the recognition of the right to environment. Part 5 discusses the management of MSW and the right to environment in Ghana, Mali and Nigeria. Part 6 discusses the implementation challenges of MSW management and concludes with key solutions.

2.0 CONCEPTUALIZATION OF MUNICIPAL SOLID WASTE AND ITS MANAGEMENT

A plethora of literature provides some clarification to the concept of MSW. MSW is defined as waste from residential, commercial, institutional and some

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[8] Mwesigye Patal, 'Integrated Assessment of Present Status of Environmentally-Sound Management of Waste in Africa' (2009) African Review Report on Waste Management-Main Report, *Proceedings of United Nations, Economic and Social Council (Economic Commission for Africa), Sixth Session of the Committee on Food Security and Sustainable Development,* Addis Ababa, Ethiopia

industrial sources in urban areas, which municipalities have the obligation to collect, transport and dispose.[9] Similarly, MSW includes refuse from households, non-hazardous solid waste from industrial, commercial and institutional establishments (including hospitals), market waste, yard waste and street sweepings.[10]

Solid waste refers to the non-liquid or non-gaseous products of human activities that are unwanted.[11] More so, MSW is considered as garbage or trash generated every day, different from other types of waste like construction and demolition, end-of-life vehicles, biomass wastes in form of agriculture wastes, forestry wastes, health-care waste and electronic waste.[12]

It is important to note that the nature of MSW differs from region to region and even different parts of the same city.[13] In some industrialized countries, the waste is usually light with low density as it consists of paper and packaging. In other industrialized countries, the residual waste after segregation of recyclables might be heavier.[14] The industrial sector customarily produces a high amount of wastes emanating from automobile industries, textile industries, manufacturing industries, construction sites or power plants.[15]

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9 Franklin M, 'Solid Waste Stream Characteristics' <https://sanitarac.pro> [Accessed 7 July 2020]

10 Schubeler P, 'Urban Management and Infrastructure', (1996) Working Paper No 9 on UNDP/UNCHS (Habitat)/World Bank/SDC Collaborative Programme on Municipal Solid Waste Management in Low-Income Countries <http://worldbank.org> [Accessed 7 July 2020]

11 Bello I, Ismail M, and Kabbashi N, 'Solid Waste Management in Africa: A Review' (2016) 6(2) *International Journal of Waste Resources*<https://www.researchgate.net> [Accessed 7 July 2020]

12 *ibid.*

13 UN Habitat, 'Collection of Municipal Solid Waste. Key Issues for Decision Makers in Developing Countries' (2011) <https://unhabitat.org/> [Accessed 7 July 2020]

14 *ibid*

15 Bello I, Ismail M, and Kabbashi N, 'Solid Waste Management in Africa: A Review' (2016) 6(2) *International Journal of Waste Resources* <https://www.researchgate.net/> [Accessed 7 July 2020]

The management of MSW involves collection, transfer, treatment, recycling, resource recovery and disposal of solid waste in urban areas.[16] This is aimed at protecting the environment, ensuring health safety and resource conversation.[17] MSW management is the collective process of sorting, storage, collection, transportation, processing, resource recovering, recycling and disposal of waste.[18] It is important to note that there are several techniques of disposing MSW common of which are: land filling, incineration, composting and recycling.[19]

A land fill is an area of land secluded for the deposition of waste. This is aimed at avoiding any contact between waste and the atmosphere, significantly the ground and water. Landfills are of three types; open dumps or unsanitary landfill, semi-controlled or monitored landfill[20] and sanitary landfills.[21] Commenting on this, Maheshwari and Deswal[22] note that it is the easiest yet the worst method of waste disposal because of its adverse effect on public health.

Composting involves the mixing of a combination of vegetable residuals, animal wastes, soil matters and water to create humus. Generally, it is a natural process

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16 *ibid*

17 McDougall Fetal, 'Integrated Waste Management: A Life Cycle Inventory',Blackwell Science, Oxford, UK 2001, 2nd Edn

18 Abila B, and Kantola J, 'Municipal Solid Waste Management in Nigeria: Evolving Knowledge Management Solutions' (2013) 7(6) *International Journal of Environmental and Ecological Engineering* <https://publications.waset.org/4713/pdf> [Accessed 5 August 2020]

19 *ibid*

20 In these sites, disposed wastes are compacted and waste dumps are covered by topsoil layer so as to reduce nuisance. Generally, all kind of wastes are dumped without segregation such as municipal, medical and industrial. Collection systems for leachates and gas emissions are also not present.

21 Such types of landfills are generally present in developed nations. These landfills are provided with all facilities such as collection system for leachate and gas emissions. There is also provision for leachate treatment and use of this treated leachate. Such landfills also control gas emissions that may be generated from waste incineration and biological treatment of waste.

22 Shobhit M and Deswal S, 'Role of Waste Management in Landfills in Sustainable Management' (2017)8 (1) *International Journal on Emerging Technologies* <https://www.researchgate> [Accessed 8 August 2020]

but has adverse effects on the environment. This is especially so where it is not controlled or monitored carefully. Other negative effects include emission of dangerous greenhouse gases as well as odour.[23] Incineration relates to the burning of solid waste materials leading to ash and slag residues and gas emissions. This process as observed by Narayana does not eliminate waste but generates new forms that are more difficult to manage. [24]

Recycling has to do with the collection, sorting, marketing, and processing of materials removed from solid waste stream. It is also the transformation or remanufacture of those materials for use as feedstock for new products and/or other productive uses.[25] This method is a potent way of waste management, considering that the idea behind this method is the reduction of energy usage, volume of landfills, air and water pollution, greenhouse gas emissions and the preservation of natural resources for future use.

3.0 EFFECTS OF MUNICIPAL SOLID WASTE ON HUMAN HEALTH AND ENVIRONMENT

Mismanaged MSW has adverse effects on human health and environment.[26] It contaminates ground water supplies, clogs drains and stagnates water thereby providing an enabling environment for insect breeding especially in rainy seasons.[27] More so, unrestrained burning of MSW and inappropriate incineration significantly contributes to urban air pollution, and generates greenhouse gases that emanate from the decomposition of organic wastes in landfills.

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23 *ibid*

24 Narayana, T, 'Municipal solid waste management in India: From waste disposal to recovery of resources?', (2009) 29 (3) *Waste management*. 1163-1166

25 Swana Technical Policy, 'Municipal Solid Waste Recycling', <https://community.swana.> [Accessed 8 August 2020]

26 Alam P and Ahmade K, 'Impact of Solid Waste on Health and Environment', (2013)2(1)*Special Issue of International Journal of Sustainable Development and Green Economic* <https://www.researchgate.net> [Accessed 15 July 2020]

27 *ibid*

Other than greenhouse gases, methane[28] (a by-product of the anaerobic respiration of bacteria) and leachate[29] thrive in landfills and endanger human health and environment.[30] Furthermore, landfill fields breed disease vectors such as flies and rats, and constitute serious health risks to workers at the landfills, nearby residents and the public.[31]

Diseases from mismanaged MSW get into the human body through the lungs, skin, and digestive system.[32] In addition, substances in water get into the human body through the digestive system and the skin.[33] More severe health risks arise where uncontrolled hazardous wastes from industries mix up with MSW. Further, MSW and industrial effluents discharge heavy metal into drainage/sewerage system or in open dumping sites.

This concentration of heavy metal finds its way into various food chains which consequently pose health hazards and problems like[34] low birth rate, cancer, congenital malformations, nausea and vomiting, chemical poisoning through chemical inhalation, flooding,[35] mercury toxicity from eating fish with high levels

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28 Methane is a colourless, odourless gas that occurs abundantly in nature and as a product of certain human activities. It is the simplest member of the paraffin series of hydrocarbons and is among the most potent of the greenhouse houses. See Encyclopedia Britannica, 'Methane' <https://www.britannica.com/science/methane> [Accessed 16 July 2020]

29 Which is the fluid percolating through the landfills and generated from liquids present in the waste and from outside water, including rainwater, percolating through the waste.

30 Alam P and Ahmade K, *supra*, (n 28)

31 *ibid*

32 What is Environmental Health? <https://phpa.health.maryland.gov> [Accessed 16 July 2020]

33 *ibid*

34 Alam P and Ahmade K, 'Impact of Solid Waste on Health and Environment', (2013)2(1)*Special Issue of International Journal of Sustainable Development and Green Economic* <https://www.researchgate.net> [Accessed 15 July 2020]

35 Uncollected waste obstructs water runoff resulting in flood.

of mercury, degradation of water and soil and high algal population in rivers and sea.[36]

Improper disposal of MSW also facilitates environmental degradation such as drainage obstruction, flooding, widespread of infectious diseases, diarrhoea, cholera,[37] typhoid fever, waterway blockage that leads to infestation of flies, ticks, and breeds mosquitoes.[38]

Finally, MSW has negative effects on marine life considering that plastic waste and other solid waste causes marine littering that affects seas and oceans globally.[39] Marine litter negatively affects the environment in a number of ways.[40]

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36 Alam P and Ahmade K, 'Impact of Solid Waste on Health and Environment', (2013)2(1)*Special Issue of International Journal of Sustainable Development and Green Economic* <https://www.researchgate.net> [Accessed 15 July 2020]

37 Yongsi H, 'Environmental Sanitation Risks on Tropical Urban Settlings: Case Study of Household Refuse and Diarrhea in Yaounde Cameroon', (2008) *Int J Human Soc Sci.*

38 *ibid*

39 Derraik J.G.B, 'The Pollution of the Marine Environment by Plastic Debris: A Review (2002) 44(9) Marine Pollution Bulletin', <https://www.sciencedirect.com/science/article> [Accessed 17 July 2020]

40 These include ingestion, poisoning, blockage of filter, physical damage of reefs and mangroves etc.) economy (cost of tourism, cost of vessel operators, losses on fishery, costs for cleanup, animal rescue operations, recovery and disposal) and endangers public safety (navigational hazards, hazards to swimmers and divers, cuts, abrasion and stick injuries, leaching of poisonous chemicals, explosive risk). Ferronato N and Torretta V, 'Waste Management in Developing Countries: A Review of Global Issues', (2019)16(6) *International Journal of Environmental Research and Public Health* <https://www.ncbi.nlm.nih.gov/pmc/articles> [Accessed 17 July 2020]

4.0 CONCEPTUALIZING THE RIGHT TO ENVIRONMENT IN RELATION TO MSW MANAGEMENT

This is considered as a third generation right,[41] whose inclusion in the human rights regime became imperative as a result of the universal influence of local and global environmental conditions on the recognition and realization of human rights.[42] This right emerged to guarantee every human being a right to a pollution free environment considering that the preservation, conservation and restoration of the environment are preconditions in guaranteeing the enjoyment of many other rights such as the right to life.[43]

This right requires states to desist from activities harmful to the environment and as well adopt and enforce policies that promote, conserve and improve the quality of the environment.[44] Elucidating on the content of this right, Cullet,[45] identifying two contents noted that the right is premised on the principle of

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41 Third generation of human rights is considered as collective developmental rights of people and groups held against their respective states. These rights have gained acknowledgement in international agreements and treaties like Universal Declaration on Human and People's Right as well as African Charter in Human and People's Right. Several Domestic legislations also recognize these rights. These rights embrace collective rights of people such as the right to sustainable development, to peace, to a healthy environment, to share in the exploitation of the common heritage of mankind, to communication and humanitarian assistance etc. Opinions are divergent on these rights as there are various debates concerning this category of rights. While some experts opine that these rights being a collective right (being that it is held by communities or even a whole state) affects their recognition considering that human rights can only be held by individuals and not by communities or a whole state. See Globalization, 'Three Generations of Rights' <https://www.globalization101.org/three-generations-of-rights/> [Accessed 14 July 2020] ;Council of Europe, 'The Evolution of Human Rights', <https://www.coe.int/en/web/compass/the-evolution-of-human-rights> [Accessed 14 July 2020]

42 Ghosh S, 'Right to Environment and a Right of Environment', (2012) <https://papers.ssrn.com/> [Accessed 9 July 2020]

43 Cullet P, 'Definition of an Environmental Right in a Human Right Context', (1995)13 *Netherlands Quarterly of Human Rights* <http://www.ielrc.org/content/a9502.pdf> [Accessed 14 July 2020]

44 Nickel J, 'The Human Right to a Safe Environment: Philosophical Perspectives on the Scope and Justification', (1993)18(1) *Yale J. of Int'L.* 282-295

45 Cullet P, 'Definition of an Environmental Right in a Human Right Context' (1995)13 *Netherlands Quarterly of Human Rights* <http://www.ielrc.org/content/a9502.pdf> [Accessed 14 July 2020]

solidarity as well as the principle of prevention. The principle of solidarity requires international, local and regional cooperation to address daunting environmental problems, considering that it is for the common good of all.

As such, the best way to ensure the implementation of this right is to lay a duty on the holder of the right to participate in the enhancement of the environment, as their actions significantly affect the state of the environment.[46] This principle promotes the need to preserve all biological processes allowing life on earth, considering that once these processes are destroyed, they cannot be recreated in a vacuum.[47]

Prevention, as the second component of this right, connotes the need to take precautionary measures that seek to avoid the creation of any potentially hazardous situation on the environment. Cullet noted that, environmental law was developed around this principle.[48] Internationally, the United Nations Conference on the Human Environment (UNCHE) Conference laid the foundation for this right in 1972. Environmental issues were enlisted as an international agenda linking human rights and environmental protection.[49]

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46 Kiss AC, 'Concept and Possible Implications of the Ri0ght to Environment.' in: Mahoney, K.E. &Mahoney, P. (eds), *Human Rights in the Twenty-first Century-A Global Challenge* (Boston London 1993),551-559, at p.556.

47 Cullet P, *supra*, (n 5)

48 *ibid*

49 Adebowale M et al, 'Environment and Human Rights: A New Approach to Sustainable Development' Paper Delivered at World Summit on Sustainable Development <https://pubs.iied.org/pdfs/11016IIED.pdf> [Accessed 22 July 2020]. Stockholm Declaration states that man has the fundamental right to freedom, equality and adequate conditions of life in an environment of a quality that permits a life of dignity and well-being. See Principle 1 of the Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration) <http://docenti.unimc.it> [Accessed 22 July 2020]

Acceding to this right for the first time, the UN General Assembly proclaimed the World Charter of Nature in 1982, which elaborates on the rights and duties resulting from the necessity to protect the environment.[50]

Furthermore, the Rio Declaration on Environment and Development further reflects the UN's effort to give recognition to this right, noting that human beings are entitled to a healthy and productive life in harmony with nature.[51] Other notable international frameworks are The African Charter of Human and People's Rights,[52] Additional Protocol to the American Convention on Human Rights in the area of Economic, Social and Political Rights, 'Protocol of San Salvador,'[53] and the UNECE European Convention on Access to Information, Public Participation and Access to Justice in Environmental Decision-Making.[54] There is also the UN Human Rights Council Special Rapporteur Report 2020 on issues relating to the enjoyment of a safe, clean, healthy and sustainable environment.[55]

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50 United Nations General Assembly Resolution 37/7, 'World Charter for Nature' <https://digitallibrary.un.org/record/39295#record-files-collapse-header> [Accessed 21 July 2020]

51 Principle 1, Report of the United Nations Conference on Environment and Development, 1992. A/CONF.151/26 (Vol. 1) <https://www.un.org/en> [Accessed 22 July 2020]

52 Article 24 recognizes the right of all people to a generally satisfactory environment favourable to their development.

53 Article 11(1) provides for the right to a healthy Environment. This provides that everyone shall have the right to live in a healthy environment and to have access to basic public services. Article 11(2) also provides further that States parties shall promote the protection, preservation and improvement of the environment. See Protocol of San Salvador <protocol-san-salvador-en.pdf (oas.org)> [Accessed 22 July 2020]

54 Also known as the Arhus Convention. This Convention was agreed at the Environment for Europe Ministerial Conference in 1998 and came into effect on October 30th, 2001. Art 1 states that the objective of the convention is to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his/her health and well-being... See Convention on Access of Information, Public Participation in Decision Making and Access to Justice in Environmental Matters <https://www.unece.org> [Accessed 22 July 2020]

55 United Nations General Assembly, Report of the Special Rapporteur on the Issue of Human Rights Obligations relating to the enjoyment of a Safe, Clean, Healthy and Sustainable Environment, 2018, <https://undocs.org/A/HRC/37/59> [Accessed 22 July 2020]. It states 16 framework principles, which set out basic obligations of States under human right law relating to safe, clean, healthy and sustainable environment.

Domestically, this right has been proclaimed in various national constitutions as an individual right or duty of state and the citizens.[56] More so, various national courts in various jurisdictions have interpreted this right. For instance, in the Indian case of *CharanLalSahu v Union of India,*[57] the Indian Supreme Court interpreted the right to life guaranteed by Article 21 of the Indian Constitution to include the right to a wholesome environment.

In Nigeria, the right to environment is protected by the Constitution by virtue of Section 20 under Chapter 2 of the Constitution titled 'Directive Principles of State Policy.' It enjoins the State to 'protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria. Whilst this provision does not confer an explicit right to a healthy environment, a number of landmark cases have established that there is an implicit right to a healthy environment.

In *Jonah Gbemre v Shell Petroleum Development Company Nigeria Limited and Others*[58] and in the Supreme Court Case of *Centre for Oil Pollution Watch v Nigerian National Petroleum Corporation,*[59] Nweze JSC held that the fundamental right of the citizens to a clean and healthy environment to sustain life is guaranteed in Nigeria. This pronouncement now equates the right to a clean and healthy environment with other justiciable fundamental rights in Chapter 4 of the 1999 Constitution and accords with best practices as applicable in other climes.

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56 Kiss A (n 48)

57 *CharanLalSahu v Union of India* 1990 AIR, 1480, 1989 SCR Supl. (2) 597

58 *Jonah Gbemre v Shell Petroleum Development Company Nigeria Limited and Others* Judgment of 14 November 2005, Suit No. FHC/B/CS/53/05 (Federal High Court of Nigeria, Benin Division). The High Court ruled that Shell's practice of gas flaring from its oil prospecting activities in the Niger Delta constituted a gross violation of the fundamental right to life (including healthy environment) and dignity of human person as enshrined in the Constitution.

59 *Centre for Oil Pollution Watch v Nigerian National Petroleum Corporation*[2019] 5 NWLR 518.587 and 597

Hence, it can be argued that the right to a healthy environment envisages that citizens of a State have a right to a healthy environment devoid of MSW, which could be potentially harmful to their health due to improper management and disposal. The following part of this paper examines the efforts of Ghana, Mali and Nigeria in ensuring this right and the effective management of MSW in these countries.

4.1 International and Sub Regional Efforts in Managing MSW and the Recognition of the Right to Environment

The combined effects of the Basel Convention 1989 and the AU Bamako Convention 1991 are indicative of efforts by the international community to ensure that States are conscious of the need to curtail, and control the trans-boundary movement of hazardous wastes and the improper trade in and disposal of the same.

Despite the adoption of these treaties, the effects of improper management of MSW have raised serious concerns within the sub-region of West Africa, especially against the background of rapid increase of urban system, population growth and economic growth rate.[60] This prompted the adoption of measures and policies in line with Article 29 of the Economic Community of West African States (herein after referred to as ECOWAS) Treaty, 1993 which reflects and adopts policies, strategies and programmes at national and regional level that protect, preserve and enhance the environment, control erosion, deforestation, desertification, locust and other pests.

In line with this Article, ECOWAS adopted its Supplementary Act A/SA.4/12/08 relating to ECOWAS Environmental Policy in 2008, which among other issues addresses the problem of urban and industrial pollution from liquid and solid

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60 Economic Community of West African States, 'ECOWAS Environmental Policy' (2008 Environmental Directorate, *ECOWAS* Commission, Abuja Nigeria) <http://www.ecowrex> [Accessed 19 July 2020]

waste.[61] With objectives that include the prevention of environmental pollution and nuisance, urban waste, the control of transboundary movements of hazardous waste as well as the promotion of information, education and communication for a healthy environment, this policy requires Member States to harmonize their environmental policies with the ECOWAS in order to achieve these objectives.[62]

Another regional framework on prevention of pollution is the West and Central Africa Regional Framework Agreement on Air Pollution.[63] This Agreement is an offshoot of the meeting of 21 West African and Central African countries,[64] which came together to address several issues on air pollution among which is household pollution and waste disposal. By this agreement, these countries agree to develop and implement programmes for integrated management of waste, provide adequate suitable facilities for the pre-collection, collection, transport and treatment of all forms of waste. They agreed to enact regulations to control the manufacture, sale and use of plastic packaging materials, enact regulations to prevent the open burning of waste and formulate, enact and enforce waste management.[65]

The above ECOWAS' policies are in line with the recognition given to the right to environment provided under Article 24 of the African Charter on Human and

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61 *ibid*. Other issues addressed by this policy includes other environmental challenges such as: land degradation, erosion and desertification, degradation of lake and river water resources, degradation of coastal maritime ecosystems and global environmental problems which affects member states.

62 *Ibid*, See art 10

63 West and Central Africa Regional Framework Agreement on Air Pollution, <Subsaharan Africa draft agreement (sei.org)> [Accessed 26 July 2020] This agreement is a recommendation from the West and Central Africa Sub-regional Workshop on Better Air Quality (BAQ) held on 20-21 July (Policy Session) and 22 July 2009 (Ministerial Session) in Abidjan, Cote d' Ivoire.

64 Cote d' Ivoire, Angola, Benin, Burkina Faso, Cameroon, Cape Verde, Chad, Congo Brazzaville, Democratic Republic of Congo, Equatorial Guinea, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

65 *ibid,* Paragraph 3.15-3.19

People's Right (herein after referred to as ACHPR) 1981, which provides that all persons shall have the right to a general satisfactory environment favourable to their health.[66] ECOWAS, through its court,[67] has upheld this right and given judicial interpretation to this right in the case of *SERAP v Nigeria.*[68]

In this case, the issue before the court was the oil spillage arising from the activities of the industrial operation of Shell Petroleum Development Company, which violated the health and adequate standard of living of the people of Niger Delta in Nigeria. The court declared that, Article 24 of the Charter requires every state to take every measure to maintain the quality of the environment. More so, the Court reasoned that the state obligation under Article 24 of the ACHPR is both an obligation of attitude and an obligation of result.

Court further ruled that the Nigerian government had failed to protect the Niger Delta and its people from oil operations, as Nigeria had not taken measures to prevent environmental degradation. This decision is similar to the African Commission on Human and People's Right in *The Social and Economic Rights Action Centre, et al v Nigeria.*[69] There, the Commission recognized the right of people of Ogoni land to clean environment, as well as the right to health in line with Articles 16 and 24 of the ACHPR.

These cases highlight the efforts of the ECOWAS Court in entrenching the right to environment. Thus, the management of MSW in ECOWAS States such as Ghana, Mali and Nigeria are examined below to determine the extent to which

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66 Article 24 of African (Banjul) Charter on Human and Peoples' Rights, Adopted 27 June 1981, OAU Doc. CAB/LEG/67/3/rev.5,21 I. L.M. 58 (1982), entered into force 21 October 1986) <https://www.achpr.org> [Accessed 23 July 2020]

67 The Court of Justice for the Economic Community of West African States

68 JUDGMENT N° ECW/CCJ/JUD/18/12 <https://www.globalhealthrights.org> [Accessed 23 July 2020]

69 *Social and Economic Rights Action Center, et al v Nigeria,* Comm. No. 155/96 (2001) <https://www.globalhealthrights> [Accessed 23 July 2020]

this right has been entrenched through legislative reform and effective management of MSW.

5.0 MANAGEMENT OF MUNICIPAL SOLID WASTE AND THE RIGHT TO ENVIRONMENT IN GHANA, MALI AND NIGERIA

5.1 Ghana

Ghana is a West African country with a total area of 238,537sq.km.[70] Demographically, Ghana's current population is 31,099,744 as at July 19, 2020 based on Worldometer's elaboration of the latest United Nations data with 56.7% of the population as urban population.[71]

Just as in many other developing countries, MSW management over the years in Ghana is an issue owing to the increase in Ghana's major agglomerations, population, economic activities and rapid urbanization without concurrent increase in MSW management.[72] Analysing this, Miezah et al[73] noted that about 0.47 kg/person/day (which translates to about 12,710 tons of waste) was generated based on Ghana's 2015 population of 27,043,093.[74]

More so, they revealed that about 0.72 kg/person/day of household waste were generated among the metropolitan cities except Tamale.[75] However, of this

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70 Ghana, 'Demographic and Health Survey' (2014) <https://dhsprogram.com> [Accessed 20 July 2020]

71 Worldometer, 'Ghana Population' <Ghana Population (2022) - Worldometer (worldometers.info)> [Accessed 20 July 2020]

72 Kyere R, Addaney M and Akudugu J A, 'Decentralization and Solid Waste Management in Urbanizing Ghana: Moving Beyond the Status Quo', (2019) <https://www.intechopen.com/> [Accessed 21 July 2020]

73 *ibid*

74 Miezah K et al, 'Municipal Solid Waste Characterization and Qualification as a Measure towards Effective Waste Management in Ghana', (2015) 48 *Waste Management* <https://www.sciencedirect.com> [Accessed 21 July 2020]

75 *ibid*

generated waste, the bulk is left uncollected and untreated within communities in drains, street corners, underbrush and in uncompleted structures.[76]

The increase in the generation of MSW in Ghana, coupled with the difficulty in managing it, has resulted in diverse environmental and health issues which the World Health Organization has found accounts for the death of 24,000 Ghanaians annually.[77] More so, data from IHME GBD 2016 revealed that pollution is the second driver of death and disability in Ghana, having contributed to 16% of deaths in 2016 and MSW management as the highest priority source of pollution.[78]

Ghana, in a bid to manage MSW in guaranteeing the right to environment, has adopted some measures through laws, policies and reform programmes that include the decentralization of MSW management subsector. This is in a bid to ensure efficiency and better service delivery at the local level.[79] This paper considers some of these measures.

Articles 36(9) and 41(k) of the Ghanaian Constitution, 1992 provide a broad framework for the responsibilities of the state and citizens for environmental protection and the maintenance of clean, healthy and safe environment.[80] From the import of these provisions, safeguarding and protecting the environment is more of a duty of every Ghanaian than a right. This author observes that the Ghanaian constitutional provision is distinct from other national constitutions,

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76 Republic of Ghana, *Health and Pollution Action Plan* (May 2019 United Nations Industrial Development Organisation) <https://www.unido.org> [Accessed 25 July 2020]

77 *ibid*

78 *ibid*

79 Kyere R, Addaney M and Akudugu J A, *supra* (n 73)

80 See art 36(9) and 41(k) of the Ghanaian Constitution. Ghana, 'Constitution of the Republic of Ghana'<https://wipolex.wipo.int/en/text/222988> [Accessed 24 July 2020]. Art 36(9) enjoins the State to take appropriate measures needed to protect and safeguard the national environment from prosperity and to seek cooperation with other states and bodies for protecting the wider international environment of mankind. Art 41(k) provides for the duty of every citizen to protect and safeguard the environment.

where the duty to protect and safeguard the environment is spelt out as a duty of citizens.[81]

In line with its Constitution, Ghana acceded to several international agreements and treaties on health and pollution and enacted several legal frameworks and policies for safeguarding the health of citizens and environment.[82] Some of these frameworks are the Local Government Act 2016 (Act 936), the Environmental Protection Agency Act (1994) Act 490, the Pesticides Control and Management Act (1996) Act 528, the Environmental Assessment Regulations 1999 (L.I 1652) and the Environmental Quality Guidelines for Air, Effluents and Noise, 2000.

They also include the National Environmental Sanitation Policy (2010), Health Care Waste Management Policy and Guidelines 2006, the Guidelines for the Development and Management of Landfills in Ghana, the Guidelines for Bio-Medical Waste (2000) and the Hazardous and Electronic Waste Control and Management Act 2016 (Act 912).[83]

Regardless of these legislations, issues of MSW mismanagement in Ghana have remained, so much so that Medium Term National Development Policy Framework (MTNDPF) 2018-2021, noted a decline from 79% in 2014 to 70% in 2016 in the management of solid waste.[84]

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81 Shelton D, 'Human Rights, Health and Environmental Protection: Linkages in Law and Practice', (2002) Health and Human Rights Working Paper Series No 1, Background Paper for the World Health Organization <REVISED DRAFT (djilp.org)> [Accessed 24 July 2020]. For instance, the 1996 Cameroon constitution expressly provided and guarantees the right to a healthy environment in its preamble. Also, the South African constitution codifies the right to environment in Chapter 2 of its Bill of Right.

82 Republic of Ghana, *supra* (n 70)

83 See also the Public Health Act, 2012 (Act 851); Criminal Offences Act, 1960 (Act 29); National Building Regulations, 1996 (LI 1630); National Land Policy, 1999; National Environmental Sanitation Strategy and Action Plan, 2010; and Ghana Landfill Guidelines, 2002

84 *ibid*

In Ghana, the sub sector with the responsibility of waste management is the Ministry of Local Government and Rural Development.[85] This Ministry supervises the decentralized Metropolitan, Municipal and District Assemblies (MMDAs), which is the body responsible for the collection and final disposal of solid waste through their Waste Management Departments (WMDs) and their Environmental Health and Sanitation Departments. As it relates to regulation, the authority vested with regulatory power is the Environmental Protection Agency (EPA) under the auspices of the Ministry of Environment and Science.

Ghana has taken several steps to manage MSW through the Waste Management Department, Public Private Partnership (PPP), and informal sector. These provide services through three modes of waste collection i.e. House to House, Curbside and Communal Container Collection.[86] The involvement of Public Private Partnership (PPP) in waste collection in Ghana laudably introduced some innovations such as polluter pay principle, introduction of tricycles (both manual and motorized to reach inner slums areas for waste collection), door-to-door approach as well as the introduction of modern machines and equipment.[87]

Commonly in Ghana, the most practiced MSW disposal option involves the collection of mixed waste materials and subsequent dumping at designated sites.[88]

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85 United Nations, 'Sanitation Country Profile Ghana' (2004) <United Nations in Ghana> [Accessed 21 July 2020]

86 Emmanuel A, 'Collection of Municipal Solid Waste in Ghana'<https://www.theseus> [Accessed 8 August 2020]

87 *ibid*

88 *ibid*

5.2 Mali

Mali is a West African country with a surface area of about 1,241,231 Km^2.[89] Demographically, Mali has the current population of about 20,290,100 persons[90] and a rapid urban growth concentrated in Bamako.[91] Similar to other parts of the world, increase in urbanization and population have increased the percentage of MSW produced in Mali. A study conducted in 2009, revealed that an individual generates approximately 0.65kg of wastes in the Malian Capital. This quantity is estimated at 2100m^3 per day for the town of Bamako.[92]

In a bid to manage MSW in guaranteeing the right to environment, Mali has adopted some measures through laws, decrees and orders. Its Constitution clearly states in its preamble the commitment of the people of Mali to ensure the improvement of the quality of life, protection of the environment and cultural patrimony.[93] More so, Article 15 guarantees the right of every Malian to a healthy environment and obligates all Malians and the state to protect, defend and promote the environment.

Other than the Constitution, other legislations that regulate solid waste management in Mali are Decree No.01-394 P-RM of September 06, 2001,[94]

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89 Samake M et al, 'State and Management of Solid Wastes in Mali: Case Study of Bamako', (2009) 3(3) Environmental Research Journal, <http://docsdrive.com> [Accessed 31 July 2020]

90 Worldometer, 'Mali Population', <https://www.worldometers.info> [Accessed 31 July 2020]

91 Samake M et al (n 89).

92 *ibid*

93 Mali's Constitution of 1992, <https://www.constituteproject.org> [Accessed 31 July 2020]

94 It defines the purpose of the management of solid waste and concepts related to this form of pollution. See Republic of Mali, 'Environmental and Social Management Framework-including Environmental and Social Impact Assessment and Social Management Plan' (2016), <http://documents1.worldbank.org> [Accessed 1 August 2020] ; DECRET N°01 - 394/P-RM DU 06 SEPT. 2001 FIXANT LES MODALITES DE GESTION DES DECHETS SOLIDES <http://extwprlegs1.fao.org> [Accessed 1 August 2020]

Decree No. 01-397 P-R of September 06, 2001,[95] Act No. 92-013/AN-RM of 17 September, 1991,[96] Act No. 01-020 dated May 30, 2001 etc.[97]

It is important to note that Item 2 of Decree No. 01-394 P-RM of September 06, 2001 specifies the aims of solid waste management in Mali. These are to prevent and reduce solid wastes and their harmfulness, valorise solid wastes by recycling, organize solid wastes elimination and recondition contaminated sites, struggle against the harmful effect of plastic wastes on human health, ground, water, fauna and flora and limit, scrutinize and control solid wastes transfer.[98]

In relation to MSW management in Mali, the Malian situation reflects a process of decentralization. Backed by the 1992 Malian Constitution and the law on decentralization (Loi 93-008) adopted in 2003, (which establishes regions, districts and communes as territorial units in the rural areas) the central government transferred authority to local governments for urban development and management.[99]

In managing MSW, the national government has the responsibility for large infrastructure for transfer and disposal, while municipalities mainly are responsible for large infrastructure transfer sites, waste collection as well as operation and maintenance of disposal sites.[100] More so, private sector firms are

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95 It defines the purpose of the management of pollutants of the atmosphere and concepts related to pollution. DECRET N°01 -397/P-RM DU 06 SEPT 2001 FIXANT LES MODALITES DE GESTION DES POLLUANTS DE L'ATMOSPHERE <http://extwprlegs1.fao.org> [Accessed 1 August 2020]

96 It establishes a national system of standardization and quality control, which is aimed at ensuring the preservation of health and the protection of life, safeguard the security of men and goods, the improvement of the quality of goods and services as well as the protection of the environment. See Republic of Mali (94).

97 *Ibid*, This framework relates to pollution and nuisances and establishes the application of the polluter-pays principle, which is designed to encourage developers to implement good environmental practices, and to carry out pollution abatement investments or to use cleaner technologies.

98 Samake M et al (n 89).

99 The World Bank, 'Result- Based Financing for Municipal Solid Waste' <http://documents1.worldbank.org.> [Accessed 2 August 2020]

100 *ibid*

also involved in the process of waste collection and the operational management of landfills.

Analysing the process of managing MSW in Mali, using Bamako as a case study, Samake et al, noted that just as in many other West African countries, families collect house hold refuse and make them available to the Groupement d InteretEconomique (GIE). Using carts towed by donkey or tractors, these transport collected wastes to transit or transfer deposit.[101] Another body known as Direction des Services Urbains de Voiries et d'Assainissement (DSUVA) takes the household waste from transfer deposit to the final discharge location located several kilometres from the city.[102]

In a further analysis Samake et al, noted that Bamako City has no standard final rubbish dumps leading to the deposition of MSW at abandoned quarries, naked areas and fields as final destination.[103]

5.3 Nigeria

Historically, Nigeria is a conglomeration of hundreds of ethnic groups geographically located on the Gulf of Guinea in Western Africa. It is located amid Benin in the West, Cameroon in the East, Chad at the Northern part and Niger

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101 The GIE collects solid waste from families, using carts towed by donkeys or tractors, transports the waste to transit or transfer deposits.

102 Samake M et al, *supra* (n 89)

103 Note importantly that there are several methods of collecting MSW in Bamako, Mali. The first method requires the collection with a team, which has ordinary tip-lorries, articulated Lorries and shovel loaders. This method is used where waste management is organized and where waste is dumped directly on the ground. The second method in collecting with tip-lorries equipped with caisson of 7 $m.^3$ This method gives users the liberty to voluntarily pour their wastes inside the tip-lorries thereby avoiding dumping waste on the ground as such impeding their dispersion. The third method is lorry-compactor utilization which is made up of compact that condition waste inside the vehicle. This process helps to do away with odor and visual aggression. Lastly, is the collection by tricycle by drivers either alone or accompanied by one or two workers. This method gives access to waste in exiguous zones and is very effective for the garbage collection of very small quantity. See Samake M, 'Elements for an Observatory in Charge of Municipal Solid Waste Management in Bamako: Case Study of Communes I and II, Master Thesis, ISFRA, pp 130

at the North Western Part.[104] Demographically, Nigeria has the largest population in Africa, with the population of 205,700,164 persons based on United Nations present population estimation with a projection of 206,139,589 persons as at 1 July 2020.[105]

Nigeria, just as other climes, is bedevilled with the problem of managing an increasing amount of MSW because of population growth, urbanization and poor standards of living.[106] Considering the amount of MSW generated in Nigeria, Yusuf et al noted that yearly waste generation has increased from 6,471 gigagrams (Gg) in 1959 to 26,600 Gg in 2015 with a projection of 36,250 Gg per year by 2030.[107]

More so, Ike et al in their analysis estimated waste generation in Nigeria at 0.65-0.95 kg/capita/day, amounting to an average of 42 million tons of waste generated annually.[108] This exceeds what waste collectors could possibly transport in a day, thereby resulting in great litter along streets, gutters and so on.[109] This situation consequently endangers public health and questions the existence of the right to a clean and healthy environment in Nigeria.

In a bid to manage MSW in guaranteeing the right to environment, Nigeria has adopted some measures through laws, policies and programmes. To start with, the Constitution of the Federal Republic of Nigeria, 1999, provides for the

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104 Douglas A and Phillips, *Nigeria*, (Philadelphia: Chelsea House Publisher 2004), p. 10. Also see Achebe, C, *Home and Exile* (New York: Oxford University Press 2000)

105 World Population Review <https://worldpopulationreview.com> [Accessed 30 May 2020]

106 Abila B, and Kantola J, *supra* (n 20)

107 Yusuf R et al, 'Energy Recovery from Municipal Solid Waste in Nigeria and its Economic and Environmental Implications', (2019) 28 *Environ Qual Manage* <https://onlinelibrary> [Accessed 5 August 2020]

108 Ike et at, 'Solid Waste Management in Nigeria: Problems, Prospects and Policies', (2018) 44(2) *Journal of Solid Waste Technology and Management* <https://www.researchgate> [Accessed 5 August 2020]

109 Maikayi M A, Marzuki A, Ahmed A, 'Urban Solid Waste Development', 2020 International Transaction Journal of Engineering , Management & Applied Science & Technology <https://tuengr.com/V11/11A05G.pdf> [Accessed 5 August 2020]

protection of the environment in Chapter 2 as one of the Fundamental Objectives and Directive Principles of state policy in Section 20.[110] This Section requires the State to protect and improve environmental life and safeguard the water, air and land, forest and wild life of Nigeria.

In the past, owing to the provision of Section 6(6)(c) of the Constitution (that ousts the jurisdiction of the court to entertain matters relating to matters under chapter 2), section 20 was considered by the courts as non-justiciable. This position was upheld in the case of *Okogie (Trustees of Roman Catholic Schools) and other v Attorney-General, Lagos State.*[111] However, in recent times, Nigerian courts have explored alternative ways of enforcing this right in line with the provisions of African Charter on Human and Peoples Right (Ratification and Enforcement) Act.[112]

In *Centre for Oil Pollution Watch v Nigerian National Petroleum Corporation,*[113] the Supreme Court alluded to the fact that, the Nigerian Constitution, the legislature and the African Charter on Human and Peoples Right, which Nigeria is a signatory, recognize the fundamental rights of the citizenry to a clean and healthy environment. This is to sustain life through the provisions of Section 33 of the Nigerian Constitution, Article 24 of the African Charter on Human and Peoples' Right (African Charter), and Section 17(4) of the Oil Pipelines Act.

With this landmark decision, the question of the justiciability of the right to environment has been laid to rest, therefore guaranteeing this right in Nigeria

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110 *CFRN, 1999(Third Alteration) Act* <(refworld.org)> [Accessed 5 August 2020]

111 *Okogie (Trustees of Roman Catholic Schools) and other v Attorney-General, Lagos State* [1981] 2 NCLR 337

112 Nigeria domesticated the Charter by enacting the African Charter on Human and Peoples Right (Ratification and Enforcement) Act. Article 24 recognizes the right of all people to a general satisfactory environment favourable to their development.

113 *Centre for Oil Pollution Watch v Nigerian National Petroleum Corporation* [2019] 5 NWLR 518, 587 and 597

just as other climes.[114] Apart from the 1999 Constitution, other laws regulate the management of waste in Nigeria. These frameworks include The National Environmental Standards and Regulations Enforcement Agency Act 2007,[115] The Harmful Waste Act 1988,[116] The National Environmental (Sanitation and Waste Control) Regulations 2009,[117] and the National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations.[118] In addition, there is the National Environmental (Base Metals, Iron and Steel Manufacturing/Recycling Industries Sector) Regulations 2011.[119]

Other than these regulations, the federal government has in place some policy guidelines on waste management and sanitation. These are the National Policy Guidelines on Solid Waste Management,[120] National Policy Guidelines on

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114 Babalola A, 'The Right to a Clean Environment in Nigeria', (2020)2(1) *Hastings Environmental Law Journal* <*The Right to a Clean Environment in Nigeria: A Fundamental Right? (uchastings.edu)*> [Accessed 7 August 2020]

115 S 25 of the Act, places the obligation for protecting public health and promotion of sound environmental sanitation on the Agency. See National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007 <http://extwprlegs1.fao.org> [Accessed 7 August 2020]

116 The Act prohibits the carrying, deposit and dumping of harmful waste on any land, territorial waters and matters related thereto. See Harmful Waste (Special Criminal Provisions, ETC) Act <http://extwprlegs1.fao.org/docs/pdf/nig18377.pdf> [Accessed 7 August 2020]

117 National Environmental (Sanitation and Wastes Control) Regulations 2009 <https://www.nesrea.gov.ng> [Accessed 7 August 2020]. The Regulations is aimed at adopting sustainable and environment friendly practices in environmental sanitation and waste management to minimize pollution in Nigeria

118 National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulation <http://extwprlegs1.fao.org> [Accessed 8 August 2020]. S 16 particularly requires solid waste generated by industries including sludge and all by-products, resulting from the operation of pollution abatement equipment to be disposed of in an environmentally safe manner. Also, it prohibits the disposal of industrial solid waste in any municipal land fill.

119 Laws of the Federation of Nigeria 2004, c N164

120 This policy is aimed at improving and safeguarding public health and welfare through efficient sanitary solid waste management methods that will be economical, sustainable and guarantee sound environmental health. Recently FEC approved a new policy initiated by the Federal Ministry of Environment which will encourage building a viable economy from solid waste. See Sunday Ode, ' Federal Government Approves Policy on Plastic Waste Management, Bill for Alternative Medical Council' (New Nigerian Newspaper, Abuja 22 October, 2020) <https://newnigeriannewspaper.com> [Accessed 20 February 2020].

Sanitary of Premises[121] and National Environmental Sanitation Policy.[122] It is important to note that various States have their own legislations on laws on management of solid waste for instance Lagos State Environmental Protection Agency Law.[123]

In Nigeria, constitutionally, the Local Government has the responsibility of collecting and disposing solid waste pursuant to the provision of Paragraph (h) of the Fourth Schedule to the 1999 Constitution.[124] However, some States through laws and edicts that are at variance with the constitution have given these functions to the state government, or created other jurisdictions that derogate the powers of the local government.[125]

The process of the management of MSW in Nigeria involves storage, collection, transportation and disposal at dumpsites.[126] The predominant methods of disposing MSW in Nigeria are: open dumping, land filling, open burning and a seldom usage of incineration.[127] In rural communities, owing to the reduced

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121 It seeks to promote a clean and healthy environment for the populace.

122 This policy seeks to stimulate, promote and strengthen regulations concerned with housing and urban development, sanitation related endemic diseases and illnesses as well as ensure environmental education. See National Environmental Sanitation Policy 2005 <https://tsaftarmuhalli.blogspot.com> [Accessed 7 August 2020]

123 Lagos State Environmental Protection Agency Law, 1996 <https://www.lasepa.gov.ng> [Accessed 7 August 2020]. This law prohibits the burning, dumping of refuse of any type, bush, weeds, grass, types, cables or waste of any description without a written permit from the Agency.

124 This provision gives the function of provision and maintenance of public convenience, sewage and refuse disposal to the local governments.

125 Ayotamuno, J. M, 'Municipal solid waste management in Port Harcourt, Nigeria Obstacles and prospects', (2004) 15(4) *Management of Environmental Quality: An International Journal*. 389–398

126 Abila B, and Kantola J, 'Municipal Solid Waste Management Problem in Nigeria. Evolving Knowledge Managing Solution',(2013)7(6) International Journal of Environmental, Chemical, Ecological, Geological and Geophysical Engineering <https://www.researchgate.net> [Accessed 8 August 2020]

127 *Ibid,* See also Ogwueleka T C, 'Municipal solid waste characteristics and management in Nigeria,' (2009)6(3) *Iran.J.Environ.Health.Sci.Eng.* 173-180

quantity of MSW, they are managed in household backyards by burning, composting, as feeds to animals and occasionally at dump sites.[128]

6.0 IMPLEMENTATION CHALLENGES OF MSW MANAGEMENT IN WEST AFRICA

Having considered Ghana, Mali and Nigeria as case studies of MSW management in West Africa, common visible implementation challenges in these countries are as follows:

6.1 Issue of Solid Waste Sorting

A common challenge relates to the sorting of waste collected especially at places such as market places where plastics, organic, hazardous and many other waste are collected and dumped in a central container. This challenge is typical of developing countries owing to high rate of illiteracy, lack of public sensitization as well as ignorance.[129]

6.2 Implementation of Laws, Regulations and Policies on Sanitation and MSW Management

From the analysis above, it is evident that there are litanies of laws on the management of MSW in our case studies. However, the level of implementation and enforcement has remained worrisome. Commenting on this situation in Ghana, Emmanuel[130] while analysing the management of MSW in Accra noted the challenge of lack of enforcement of sanitation laws especially in the metropolis. By this, it is meant that people litter with impunity and go scot free as the habit has become the norm.

This is similar in Nigeria, where constitutional strength of waste management policy is weak, ineffective, unmonitored and fail to achieve the aim of the 3R's of

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128 *ibid*

129 Emmanuel A, 'Collection of Municipal Solid Waste in Ghana'<https://www.theseus.fi> [Accessed 8 August 2020]

130 *ibid*

waste management i.e. reduce, reuse and recycle.[131]Also in Mali general laws on MSW management are not often implemented due to lack of corresponding operational decisions or regulations.[132]

6.3 Financial Constraint

This is another challenge impeding the effective management of MSW common in these countries. Waste management has a high operational cost. However, waste collection costs are normally subsidized leaving the bulk of the expenses on the government who constantly fail or delay in its financial obligation on waste management.[133]

In Ghana for instance, this factor has impeded the effectiveness of the Waste Management Department. This also is a major challenge in Nigeria, as analysed by Abila and Kantola,[134] as well as in Mali where because of this challenge and others, MSW are companion of inhabitants found on streets, gutters, naked areas and along rivers.[135]

6.4 Poor Attitude and Cultural Lifestyle of People towards Sanitation

This is because of the unwillingness on the part of household and shop owners to pay for services rendered leading to poor cash flow owing to inadequate public education and sensitization. This factor propels companies in these countries to concentrate on high-income zones or wealthy areas than low income areas where little or no service is rendered.[136]

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131 Abila B, and Kantola J

132 Eaton and Hilhorst, 'Opportunities for Managing Solid Waste Flows in the Peri-urban Interface of Bamako and Ouagadougou', (2003)15(1) Environment and Urbanization <https://journals.sagepub.com> [Accessed August 10, 2020]

133 Emmanuel A (n 129)

134 Abila B, and Kantola J *supra*, (n 126)

135 Ngounou B, 'Mali: Government Proceeds on Implementing Environmental Report' (2019) <https://www.afrik21.africa> [Accessed 10 August 2020]

136 Emmanuel A *supra*, (n 129)

6.5 Inadequate Logistics and Frequent Break Down of Waste Collection Vehicles or Equipment

The frequent break down of waste collection vehicles or equipment, coupled with inadequate funding has resulted in the inefficient management of MSW in Ghana, Mali and Nigeria. Even worse is the bad shape of roads as well as their inaccessible nature.

6.6 The Use of Landfill and Open Dumping

A common characteristic of the method of disposal of MSW in Ghana, Mali and Nigeria is the use of landfill and open dumping which increases public health hazards to human lives, animals and plants. For instance in Mali, a landfill was noted to have taken over a whole neighbourhood in Bamako Commune II endangering the lives of the residence as well as constituting nuisance.[137]

In view of these common challenges observed from existing research carried out in these three countries, this paper provides key recommendations for proper management of MSW vis-a-vis the right to a healthy environment in West Africa.

7.0 SOLUTION FOR MANAGING MUNICIPAL SOLID WASTE IN WEST AFRICA

The following recommendations are proffered based on the above challenges:

There is the need for stakeholders to partake in the primary management of waste. They should enforce legislations as well as abide by waste management rules and regulation.

Furthermore, there is need to adopt different techniques for collection, transportation and disposal of MSW. Stakeholders should adopt several methods of facilitating awareness programmes and proper record keeping of waste

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137 The Observers, 'In the Heart of Bamako, a Landfill takes over a Neighbourhood', (2018) <https://observers.france24.com> [Accessed 10 August 2020]

generated per capita/day and annually. More so, there is need for specification of waste disposal, treatment as well as disposal sites. There is also a need for stakeholder to collaborate in waste management to promote recovery, reuse and recycling of MSW.

Training and education is needed for waste management staff in municipalities and private companies, to provide them with technical expertise on the implementation and management of sustainable waste. Training at governmental and political levels is also necessary, to build the understanding of the importance of sound waste management.[138]

There is need to establish local and international networks and partnerships. Public – private partnerships can help provide the infrastructure, technology and build robust services for tackling challenges in managing MSW.

Furthermore, there is need to raise awareness and change public attitude on waste generation, waste management, uncontrolled dumping, open dumping, burning of waste as well as the impact of MSW on human health and the environmental. People's perception and orientation about waste needs to change. Considering we are in the era of social media, the persistent use of ICT and social media to disseminate information will be of immense benefit.

In addition, there is need to reorient and emphasize on the prompt payment of waste management dues and remuneration of waste collectors. Also, considering the importance of the informal sector in managing MSW, there is need to recognize, integrate and support this sector as major actors in MSW collection, sorting and recycling.

Beyond the above, there is need to embrace other viable and contemporary ways of utilizing MSW, for instance the conversion of waste to energy. Waste to energy

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138 United Nations, 'Africa Waste Management Outlook' <https://wedocs.unep.org> [Accessed 19 January 2021]

is an environmentally friendly process that generates energy in the form of electricity, heat or fuels from both organic and inorganic waste.[139] This is a contemporary trend that has gained international recognition and acceptance by many countries, such as the United States of America, Europe, China, and even Africa.[140]

This new trend is gaining prominence in some West African countries such as Ghana. For instance in 2018, a Ghanaian company known as Doxa Worldwide and a New Zealand Company (Armech Group) had a joint venture to build $300 million waste-to-energy plant in Tema.[141] This innovation should be adopted by other states in West Africa to manage MSW.

Another innovative way of utilizing MSW that will solve the problem of managing MSW in West Africa is the conversion of MSW into building blocks. This is an economical way of recycling MSW, especially plastic waste for construction purposes.[142] Apart from its advantage of solving the hazardous impact of plastic waste from the environment, it reduces construction costs, and is more durable

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139 Neikerk S V and Wegmann V, 'Municipal Solid Waste Management in West Africa', <http://www.world-psi.org/> [Accessed 19 January 2021] In Africa, the first waste-to-energy plant was opened at Koshe Landfill of Addis Ababa, Ethiopia in 2018.

140 Rogoff M J, 'The Current Worldwide Waste to Energy Trend', (2019) <https://www.mswmanagement.com> [Accessed 21 Jan 2021]

141 Proctor Darrell, 'Waste-To-Energy Power Plant to be Constructed in Tema' (March 25, 2018 News and Technology for the Global Energy Industry) <https://www.powermag.com> [Accessed 21 January 2020]

142 Research conducted by Singh, Singh and Thokchom reveals that bricks produced with plastic waste are lighter, stronger than bricks created with clay and has the advantage of lower construction cost. See Singh, Singh and Thokchom, 'Manufacturing Bricks from Sand and Waste Plastics'(2017)5(3) *International Journal of Engineering Technology , Management and Applied Sciences* <http://www.ijetmas.com> [Accessed 20 February 2021]

than conventional building materials.[143] Countries such as Canada,[144] Columbia, Cote d'Ivoire,[145] etc. have embraced this new trend.

8.0 CONCLUSION

Managing MSW in West African countries is a Herculean task, as common challenges in Ghana, Mali and Nigeria persistently hinder the effective management of MSW. However, considering the negative impact that mismanaged MSW has on human health and the environment, these challenges must be surmounted to guarantee the right to a clean and healthy environment, for the benefit of present and future generation.

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143 *ibid*

144 World Green Building Council, 'Why Plastic Waste is the Perfect Building Material', <https://worldgbc.org> [Accessed 20 February 2021]

145 Sparrow N, 'Bricks Made From Plastic Waste Build Much Needed Class rooms in West Africa' (Plastic Today, 2019) <https://www.plasticstoday.com> [Accessed 20 February 2021]

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CFRN, 1999(Third Alteration) Act <https://www.ilo.org> [Accessed 5 August 2020]

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Convention on Access of Information, Public Participation in Decision Making and Access to Justice in Environmental Matters <https://www.unece.org>

Council of Europe, 'The Evolution of Human Rights', <https://www.coe.i>

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