Public-Private Sectors Participation and Governance of Municipal Waste Managers in Conakry, Republic of Guinea

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ABSTRACT

Several studies have examined the effects of persistent increase in rural-urban drift which has graciously increase the level of waste management governance to national and local authorities as well as practitioners which has been saddled with the responsibilities of managing the environmental sanitation via waste managers. Inability of the central government to solve the issues surrounding waste that causes hazard in the cities has brought about private sectors involvement in the management of waste in the country which the central government has failed in the practices and sustainability of effective waste management due to lack of funding. Not all regions were successful in resolving the solid waste issue because local governments did not adopt strong governance. Yet, adequate attention has not been given to collaborative efforts between government and private sector to manage municipal wastage at all levels of government where the general economic growth has become one of the major challenges confronting management of solid waste in Conakry. This study adopted a descriptive survey research. The data were gathered through existing literature. Precisely, the paper discusses the practices of good governance in respect to public-private sections participation has continued to take various techniques to manage the waste generated across and to assess the performance of these agencies on pollution, hazard, and dumpsters in the study area. It is therefore recommended that as the government should work harder to encourage households to make early payments of services to the private providers while also educating the public about safe garbage disposal. The paper concluded that the mandate of Public-Private Sectors Participation has largely been achieved to ensure effectiveness in sustainable solid waste management system in the Republic of Guinea, Conakry precisely.

Keywords: Governance; Public-Private Sectors Participation; Rural-Urban Drift**;** Solid Waste; Waste Management; Conakry

INTRODUCTION

Wastes, which are not handled in a manner that will eliminates the infective organisms within them, hazardous volume of minute disease-initiating agents like fungi, bacteria, viruses or parasites; these disease-agents can gain entry into the human system through skin cuts and other skin surface breaks, by being inhaled into lungs, through mucous membranes in the mouth or getting swallowed, through interaction with a transmitter organism (Lee, at. al., 2014; World Bank, 2021). Individuals who come in directly exposed with these wastes are at utmost risk. Examples of such people include citizenry, health care workers, health institution cleaner, patients, visitors, waste gatherers, disposal site workers, waste scavengers, drug hooks and those who intentionally or unintentionally use “recycled” polluted.

The insecure management of waste is widespread in several territories across the globe, especially in low to middle income nations of which Republic of Guinea is one (WHO Health Care Waste Fact Sheet, 2016). Several studies have shown that the futile management of contagious waste across developing nations, can negatively impact the value of a people, consequently creating a noteworthy occupational environmental

and public risks (Cole, 2000; Coker, 2009; World Bank, 2021). In developing countries, studies carried out regarding waste management is labelled as being substandard and public enlightenment through sanitization on related issues is nonexistent among waste producers and handlers, without affording any particular training or direction concerning the managing such waste in a different way (Ogbonna, 2011, WHO, 2022).

The lack of proper management of waste poses extreme health implications through the spread of infections to people and personnel of waste managers. Discarded waste may be collected from waste bins, repackaged and sold or consumed without professional advice or contact with contaminated exposed blood or body parts on dumpsites with pollution. These acts can impair the quality of life and this invariably affects the socio-wellbeing of the whole population and the nation's economy at large. The safe management of waste in any society hinges on a committed team of waste managers, meticulous planning, reinforcing laws, good administration, sufficient funding, organizational commitment and maximum involvement of staff who have undergone thorough training (WHO, 2008; 2022).

Oyeniyi (2017) had attributed rapid urbanization, rural-urban migration, little or no town planning efforts coupled with attitudinal irresponsibility, lack of political will, ineptitude and graft as factors that have both independently and collectively created environmental challenge in Guinea Conakry. With rising urbanization, the amount of municipal solid waste has been increasing rapidly and its composition is also changing. Urbanization has exploded with great speed and scale in recent decades with "more than half the world's population now living in urban centres" (Tacoli, 2012; Oloyede, 2017), as countries and even individual cities struggle to be competitive in the global marketplace.

Industrialization influences the level of urbanization and increases population rate thereby increasing the overall waste generated. Industrialization has often been identified as one of the solutions to economic development in developing countries, to which category; Republic of Guinea is not an exception and thus leading to an emphasis on industrial enterprises. The intention behind the encouragement of industries, according to Sano (2022), lies in the development of a diversified economy that could propel the achievement of stable and sustainable societies, since the agricultural sector, the main economic activity in Sub-Saharan African countries cannot provide enough employment and income to the growing population. In developing countries, solid waste management is often under-funded due to a combination of inadequate resources from municipal tax revenues, insufficient user fees, and the mismanagement of funds (Zurbruegg, 2003; Coffey & Coad, 2010; World Bank, 2021).

The management of solid waste has posed a serious challenge to development of many developing nations. Factors responsible for waste generation in many modern societies are traced to increasing population, rapid urbanization and industrialization (Olukanni, 2014). Rapid urbanization has increased pressure on social services, most of which have not been sustainably provided to match socio-economic and demographic growth (Keyessi & Mwakalinga, 2009).

Overtime, solid waste management has been a challenge to both developed and developing countries. However, there is no gainsaying that the challenges of solid waste management in developing countries are quite different from those of developed countries. Therefore, a different approach is expected to be adopted in its management. A recent article on solid waste management in the United States argued that the US is facing a huge solid waste disposal problem especially in urban areas. It identified that US citizens generate more waste per capita than can be disposed off, in an environmentally sound, cheap and less strenuous ways due to the fact that the metropolis (urban areas) lack space for new landfills owing to urban sprawl of affluent suburbs that uphold a "Not-In-My-Back-Yard" (NIMBY) mentality i.e. landlords and residents tend to oppose any form of development (landfills) close to their residences, although they acknowledge they need it but it should be far away from their residence.

The use of appropriate technology for waste disposal is of major importance (Lee, *et al.*, 2014). Series of

studies have been undertaken concerning municipal and industrial waste, however, less emphasis and low awareness have been paid towards the case of waste, particularly in Guinea Conakry. Therefore, this paper, aims to assess practices adopted in the management of considers solid waste management to fill the existing gap in knowledge.

REVIEW OF LITERATURE

Waste

The issue of waste has overtime being a subject of great concern to any society either developed, developing or underdeveloped especially as it has a significant effect on the state of public health and the overall survival of any society. Waste as any unwanted material intentionally thrown away for disposal. The quantity of this material is increasing readily due to increase in human population and increase in the standards of living. Waste is regarded as any environmental pollutant that is caused by human induced activities or through natural phenomena of the ecosystem (Mohammed & Chukwuma, 2011 cited in Oloyede, 2017; World Bank, 2021). It can also be viewed as organic and inorganic material produced by households, commercial and industrial establishments that have no economic value to the owner (UNICEF, 2006). It is something for which we have no further use and which we wish to get rid of or any material flow pattern that is rejected by the society (Muhammed & Manu, 2013; Oloyede, 2017).

The term "waste" in accordance with The Basel Convention of 1989 on the Control of Transboundary Movements of Hazardous Waste and their Disposal, adopted by the European Union in 1993, are substances or objects which are disposed of or are intended to be disposed of or are required to be disposed of by the provisions of national law. McMichael (2012) and Sano (2022) argued that waste is residual materials which are as a result of human activities which cannot be reused or recovered as a resource, recycled into material production processes or thermally/biologically utilized for energy production. As described in the Final Draft copy of the Agence Nationale d'Assainissement et de Salubrité Publique (ANASP) (in English —> National Sanitation and Public Health Agency), Waste is an undesirable/unwanted by-product, emission, or residue of any process or activity that has been discarded, accumulated or stored for the purpose of discarding or processing.

According to Udechukwu (2009), wastes are useless, unwanted and discarded materials. Douglas (2004) corroborates Udechukwu's stance and argues that 'waste is a material which arises from animal and human life and activities and is discarded as useless and unwanted. Thus, waste encompasses animate and inanimate objects that are discarded by its possessor owing to the fact that it has served its useful life and of no further value to the possessor.

Solid Waste

The World Health Organization (WHO) (1971) defines Solid Waste as any useless, unwanted or discarded material that arises from man's activities and is not free flowing. For example, it may be yesterday's newspaper, junk mail, today's meal scraps, pieces of bread, roti, waste rice, racked leaves, dust, grass clippings, broken furniture, abandoned materials, animal manure, sewage sludge, industrial refuse or street sweepings, etc. The refuse materials such as newspaper, cotton pieces, foodstuff, skin, clothes, leather, old dress, fish, etc., anything of solid produced by the humans is going to become a waste sometime, somewhere and somehow. Solid waste is more hazardous because some of them like paper, bottles, plastics, textiles, amongst others are regarded as non-biodegradable which implies they cannot be broken down through organic process; thus, an accumulation of such filthy and unhealthy sight, poses serious health threat to residents and decaying waste equally attracts pests with a more adverse effect on public health. Due to the leeches produced, it equally affects the soil adversely making the land unavailable for other useful purposes.

American Public Works Association (1975) as quoted in Oloyede (2017), an agency of The United States Environmental Protection Agency described solid waste as any useless, unwanted or discarded material with insufficient liquid content to be free flowing. The need for healthy environment is important to everybody. It may differ from place to place, not in the fundamentals but in complexity (Ahmed & Ali, 2004). Oloyede (2017) quoting Babayemi and Dauda (2009) defined Solid Waste as non-liquid and non-gaseous products of human activities regarded as being useless. It could take the form of refuse, garbage and sludge. Solid Waste arises from unusable residues in raw materials, leftovers, rejects and scrap from process operations, used or scrap packaging materials and even the saleable products themselves when they are finally discarded (Muhammed & Manu, 2013). It includes any garbage, refuse, sludge and items that have lost its original value hence discarded or getting ready to be discarded.

Solid waste constitutes a growing problem and has gained increased political awareness over recent years. Amuda, *et, al.*, (2014) and Sano, (2022) argues that the amount of solid waste generated in the world is steadily increasing and every government in the world is currently focusing on methods to approach the challenges posed by municipal solid waste managers such as:

1. Agence Nationale de l'Assainissement et de la Salubrité Publique;
2. Agence Nationale d'Assainissement et de Salubrité Publique; and
3. Nationale de la protection de la Nature et Direction de Prévention et Lutte contre les Pollutions et Nuisances.

Many people in African countries including Republic of Guinea, until recently, regard the concern for effective strategies for managing urban solid waste as a less important issue which may distract attention from the most urgent and serious problem of achieving a fast rate of economic growth in Guinea Conakry. This attitude stems in part from the belief that environmental degradation with urban solid waste generation is an inevitable price of development (Sano, 2022).

The amount of solid waste generated in an area usually rises with increase in population. The increase in population amidst economic and social development that comes with the demand for a higher and affluent standard of living creates the need for more production as there will be more demand for consumption (UNEP, 2007). By human nature, people have different, and in some instances, distinct ways of doing things. It is no wonder that people will dispose of waste in different ways including indiscriminate dumping.

An urban city like Guinea Conakry is environmentally unconscious ways of disposal contribute to the growth of the solid waste problem in the entire Republic of Guinea and particularly in Conakry. The view held by Sano (2022) that Republic of Guinea government has the responsibility to provide services to the citizens, including solid waste management, may be contestable. There may be questions like, to what extent does this responsibility go, and what is the implication of the extent of the magnitude of responsibility held by the government, on effectiveness of the service provision? Besides, the government may not be in position to shoulder the whole responsibility on its own.

Sources of Solid Waste

The sources of solid waste can best be understood from the table below

Source	Typical activities, or locations where waste are generated	Types of Solid Waste
Residential	Single family and multifamily detached dwellings, low, medium and high rise apartments	Food waste, paper, cardboard, plastics, textiles, leather, yard waste, wood glass, tin cans, aluminium, other metal ashes, street leaves, special waste, household hazardous waste

Commercial	Stores, restaurants, markets, office buildings, hotels, motel, print shops service, stations, auto repair shops, etc	Paper, cardboard, plastics, wood, food, waste, glass, metals, special waste, hazardous waste, etc
Institutional	Schools, hospitals, prisons, governmental centres	As above in commercial
Municipal Services	Street cleaning, landscaping, catch basin cleaning, parks and beaches, other recreational areas	Special waste, rubbish, street sweepings, landscape and tree trimmings, catch basin debris, general waste from parks, beaches and recreational areas.

Source: Guangyu, n. d. (Sources of Municipal Solid Waste within a community)

Waste Management

Waste management has grown into a crucial subject which bring about risks to the human health and damage to the natural environment and countries at large. Afon (2018) quoted by Sano (2022) defined waste management as the various means and procedures of dealing with wastes at all stages, commencing from waste production to its final disposition. The volume of waste emanating from both urban and rural communities as well as industries are based on elements like financial, societal and cultural standing of their users and the over-all atmosphere prevalent in the location of the waste facility.

The urban congestion, urban poverty, and political confinement contribute to the complexity of waste management in Guinea Conakry. It has also been argued that grassroots politicians invested heavily in solid waste privatisation and manipulate the channels set up by the government (Sano, 2022). The enforcement of the ban on informal cart pushers is another subject to reckon with. It is arguably believed that the PSP operators have turned to gatekeepers, using state institutional framework for personal gain. Also, there are debates that the outlaw of the informal private sector in the country tends to lead to waste congestion most especially in informal settlements in the study area. It is against this backdrop this study is set out to assess the impact of the public-private partnership on solid waste management, investigate the effectiveness of private sector participation in waste management, and analyse the challenges facing private sector operators in the of managing waste in Guinea Conakry.

Waste facilities situated in low-end sections of the city, generality these wastes emanating comprise remains from fruits that are plenteous in quantity, while waste facilities situated in high-end sections of the city; generality of wastes emanating comprise bottles, tins and one time used food holders. (Afon, 2018). To this end, there are various waste management practices ranging from the production of waste to waste treatment.

Waste Management Practices

1. **Waste Production:** Wastes emanate from numerous undertakings carried out in the facility, which is general and medical wastes. The general waste is comparable to the wastes from homes and cities. Medical waste is also referred to as contagious waste which emanates from dialysis, surgical procedure, birthing operations, resection of post-mortem, biopsy, para-medical tests, injections, etc., that are held to be dangerous in nature (Abdulahi, 2020).
2. **Waste Segregation:** It is the process in which hospital sorts medical waste from ordinary waste at generating stations (WHO, 2017). According to the WHO proposal, government or government

agencies are meant to make available waste holders like plastic bags and containers for contagious waste like antiseptic container. Abdulahi, (2020) explained that contagious waste holders should be labeled as Biohazard.

3. **On-site Transportation of Waste:** This is the process in which the wastes produced in facilities are collected daily and moved to an interim storing location by designated handler.
4. **Temporary Waste Storage Area:** This simply refers to the place where the waste is kept before being transported to the final disposal site. This area must be thoroughly sanitized and secured, such that it is accessible only to the authorised personnel like waste managers (Abdulahi, 2020). The wastes are held in this temporary waste storage area till it is time for off-site transport. Sano (2022) identified that the non-infectious and infectious wastes are kept in separate collecting bins and are not mixed together while in the hospital's own temporary waste storage area.
5. **Waste Treatment:** This refers to the process involved in decreasing the weight, mass and organic compounds of the waste and risk of infectivity. Sano (2022) pointed out that with the increase in the volume of waste, the continuous disposal of waste to landfill is unsustainable. Thus, incineration is the main method for the treatment of waste especially infectious and sharp wastes for Guinea Conakry.

Solid Waste Management

As submitted by the WHO (2012), the overall goal of urban solid waste management is to collect, treat and dispose solid waste generated by all urban population groups in an environmentally and socially satisfactory manner using the most economical means available. The Republic of Guinea created some agencies to cater for solid waste management in the country and the primary purpose of Nationale de la protection de la Nature et Direction de Prévention et Lutte contre les Pollutions et Nuisances are to address the health, environmental, aesthetic, land-use, resource, and economic concerns associated with the improper disposal of waste (Nemerow, 2009; Sano, 2022).

Waste collection is an integral part of waste management. Thus, the following methods as major means of collecting waste in the metropolis: house to house, communal depots, curbsides, block systems, communal-industrial collection, and bulk loading. Waste treatment, on the other hand, is a preceding phase of waste disposal as waste treatment techniques, reducing the volume and toxicity, seeks to transform all sorts of waste into more convenient form for disposal. In an ideal situation, waste treatment and disposal methods are selected and used based on form, composition and quantity of waste materials.

One of the most important activities in solid waste management is disposal (Afon, 2018); the failure of which is evidenced in the mounting heaps of waste that is dumped indiscriminately around the metropolis. Considerable percentage of solid waste generated in Guinea Conakry are either deposited on the roads, or road sides, unapproved dump sites, in water ways (drainage system), or in open sites which adversely affect environmental friendliness. Indiscriminate solid waste disposal is actually a menace and embarrassment to many cities in the Republic of Guinea where heaps of refuse litter most parts of the country, this problem has been recognized by scholars such as Afon (2018) and Sano (2022).

Nonetheless, these scholars had made recognition to waste disposal in passive and general forms. However, specific studies that scientifically examined the relationship between residents' perception on the activities of the government (local government; Agence Nationale de l'Assainissement et de la Salubrité Publique; Agence Nationale d'Assainissement et de Salubrité Publique; Nationale de la protection de la Nature et Direction de Prévention et Lutte contre les Pollutions et Nuisances; and the state's ministry of environment), municipal waste managers and their waste disposal patterns are not common.

Solid waste poses various threats to public health, it adversely affects plants and animals as well as the environment especially when it is not appropriately collected and disposed. The poor state of solid waste management in Guinea Conakry is seemingly caused by inadequate facilities, poor funding, and poor

implementation of policies as well as wrong lifestyle (consumption pattern). Thus, the problem of effective solid waste management has to do with poor social service delivery efforts which cause unnecessary delays in solid waste clearance. It is either broken down machinery, non-maintenance of dumpsters, poorly maintained urban streets and roads and irregularities in the designation of sanitary landfill sites.

Republic of Guinea seem to be permanently accustomed to dirt. Evidence of this can be seen every day by way of indiscriminate discharge of garbage into drains and at times on the highways. Isaac, *et. al.,* (2013) revealed that household account for about half of the solid waste generated, that is, by weight in the third world cities, which includes Accra, Ghana and Conakry, Republic of Guinea. The major effects of poor solid waste management in Conakry include: blocked drains, flooding, erosion, traffic congestion, soil pollution, air pollution, health problems, unaesthetic dump sites and loss of community pride.

Municipal Solid Waste

Municipal solid waste is useless unwanted material discharged as a result of human activity (Adefemi & Awokunmi, 2009; Oloyede, 2017). Solid waste other than hazardous and radioactive material is often referred to as Municipal Solid Waste (MSW). It includes waste generated from residential, commercial, industrial, institutional, construction, demolition, process and municipal services (Oyelola & Babatunde, 2008). Municipal solid waste is defined to include refuse from households, non-hazardous solid waste from commercial, institutional establishments (including hospitals) and industrial waste with the exception of industrial hazardous waste (Schubeler, 1996; Isaac, *et. al.,* (2013). It is the collection, transfer, treatment, recycling, resources recovery and disposal of solid waste in urban areas. Igoni, *et. al.,* (2007) as quoted in Oloyede, (2017) defined municipal solid waste as all waste collected by private and public authorities from domestic, commercial and some industrial (non-hazardous) sources.

Municipal Solid Waste (MSW) is a term usually applied to a heterogeneous collection of waste produced in urban areas, the nature of which varies from region to region. The characteristics and quantity of the solid waste generated in a region is not only a function of the living standard and lifestyle of the region's inhabitants but also of the abundance and type of the region's natural resources (Ogwueleka, 2009). Urban waste can be subdivided into two major components: organic and inorganic waste. In general, the organic components of urban solid waste can be classified into three broad categories: putrescible, fermentable and non-fermentable. Putrescible waste tends to decompose rapidly and unless carefully controlled, decompose with the production of objectionable odours and visual unpleasantness. Fermentable waste tends to decompose rapidly but without the unpleasant accompaniments of putrefaction. Non-fermentable waste tends to resist decomposition and therefore, break down very slowly. A major source of putrescible waste is food preparation and consumption. As such, its nature varies with lifestyle, standard of living and seasonality of foods. Fermentable wastes are typified by crop and market debris while inorganic waste are those exposed to natural environment conditions, not to re-join the land, for hundreds or thousands of years, these include plastic, wipes, diapers, plastic bags, glass containers, aluminum cans, polystyrene, etc.

According to Tchobanoglous *et. al.,* (1993) the term municipal solid waste normally is assumed to include all of the waste generated in a community with the exception of industrial process waste and agricultural waste; sources as residential, commercial, institutional, construction and demolition, municipal services excluding treatment facilities, treatment plant sites; municipal incinerators. In Guinea Conakry municipal waste density generally ranges from 280-370 kg/m3, Waste generation rate is 2 million tons annually and daily rate of 0.44-0.66 kg/capital/day (Sano, 2022).

Waste generation and composition is greatly influenced by population, income, economic growth, season, climate and social behavior. In Republic of Guinea (Guinea Conakry) waste stream generally consist of putrescribes, plastics, paper, textile, metal, glass. In Conakry waste composition is heterogeneous and is

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mixed; non-degradable materials and degradable components. The waste is not segregated at the source or at any point during handling and comprises of hazardous and non-hazardous waste. The hazardous components usually consist of house hold cleaning agent and left over chemical from renovations.

Types of Municipal Solid Waste

According to Afon, (2018) as discussed by Sano (2022), the following are the various types of municipal solid waste

1. Food waste
2. Garden (yard) and park waste
3. Paper and cardboard
4. Wood
5. Textiles
6. Nappies (disposable diapers)
7. Rubber and leather
8. Plastics
9. Metal
10. Glass (and pottery and china)
11. Other (e.g. ash, dirt, dust, soil, electronic waste)

Sources of Municipal Solid Waste

Under the broad concept of municipal solid waste, the following classification of sources of waste in Guinea Conakry are discussed below:

1. **Household Solid Waste:** this includes waste from households and greater percent of waste in this category consist of organic kitchen waste. It includes sweepings, rags, paper and cardboard; a small but growing percentage of plastic and small proportion of glass, rubber, leather, bone and metal.
2. **Commercial Waste:** this comprises of waste from commercial activities in a society. Market is one of the important sources of commercial waste and much of its product is biodegradable. Other sources can include shops, restaurants, warehouses, hotels and offices.
3. **Institutional Waste:** this comprises of waste from schools, governmental offices, hospitals, and religious buildings. Paper is the predominant waste from institutional sources except those containing residences.
4. **Construction Waste:** variety of residual building materials are generated as a result of construction and demolition activities as well as soil and rock from excavation which can add to total waste quantities generated. Construction waste is different from household waste and they are collected by the use of heavy-duty vehicles and equipment.
5. **Industrial Waste:** this includes waste generated as a result of industrial activities in an area. Industrial waste from processing and non-processing industries is generated in quantities and characteristics that are directly related to the number, size and nature of the industries.
6. **Street Litter:** this can consist of sand, stones, spilled loads and debris from traffic accidents, paper and plastic litter from vehicles or blown by the wind and dropped by pedestrians. It may also contain some amount of household refuse, human and animal faecal matter.

Mandate of Agence Nationale d'Assainissement et de Salubrité Publique (ANASP) (in English —> National Sanitation and Public Health Agency)

The ANASP Edict was signed into law in 2005, responsibility, functions and prohibition acts were promulgated in it in addition to penalties for flouting the various aspects of the act. Relevant functions of the Agency include:

1. Monitoring and control of any form of environmental degradation that may result from agricultural, industrial and government operations.
2. Monitoring and control of generated waste disposal within the state
3. Monitoring and control of surface, underground and potable water sources, air, land and soil contamination within the state, in order to determine the pollution level or collect baseline data.
4. Collaboration with all tiers of government, other ministries, department and agencies as well as research agencies on environmental protection issues.
5. Ensure measures that will combat all forms of environmental degradation, in the agricultural, commercial, industrial and government operatives within the state.
6. Enter and search vehicles, tents and structures in any premises engaged in carrying out agricultural, commercial and industrial operations.
7. Take samples and perform tests on any substance or substances discovered within any searched premises.

Private Sectors Participation in the Management of Solid Waste

Every successive government in government have had to contend at one time or the other with the problem of huge mountains of un-cleared solid waste in the cities is a clear indication that an appropriate solution is yet to be proffered (Sano, 2022). Since the populace cannot be stopped from generating waste, the fundamental issue therefore is how to manage the waste being generated so that it will not constitute health hazard and also meet the aesthetic demand of a decent society (Onibokun, Adedipe & Sridhar, 2000 cited in Shiyanbade, 2020).

Many approaches had been experimented towards the management of waste in Guinea Conakry. Various modalities have been adopted like the shifting of the managing authority from the region to the local government, to independent management boards and then back to the state. Currently, the approach being experimented by many governments is the Public Private Partnership (PPP), where there is a synergy between the public and private sector i.e. it's essentially the involvement of both the public and private sector in the management of waste.

The Republic of Guinea Government (RGG) has sought to involve the private sector in the provision of municipal waste services. The Ministry of Environment, Sanitation and Public Health has initially engaged the services of private operators/managers to undertake the collection and disposal of solid waste in the government reservation area otherwise known as "Housing", a high-income suburb located in the capital city of Conakry (part of the planned residential zone like Lambagni, Abattoir and Gbessia). At first, this process was successful and led to an improvement in waste services. However, some of the private operators engaged in house-to-house refuse collection had withdrawn their services because of a rise in operating costs, including vehicle maintenance.

This gave birth to the establishment of Nationale de la protection de la Nature et Direction de Prévention et Lutte contre les Pollutions et Nuisances that serves as an Agency solely responsible for the management of waste in Conakry. In a bid to ensure that waste management is given priority attention, the government had made efforts to collaborate with the private sector which had led to the government to partially outsource or contract waste collection to private operators known as Municipal Waste Managers. Community

Development Associations were consulted by Nationale de la protection de la Nature et Direction de Prévention et Lutte contre les Pollutions et Nuisances officials in order to enlist their support and cooperation, which was viewed as important to any cost recovery strategy.

There is the issue of the nature of government's role in the articulation and implementation of private participation in municipal waste services in low-income countries. Arbitrary interference in, or recommendation of, service levels and user charges may be counter-productive. Encouraging local residents and private sector operators to work together to resolve issues of service standards and service charges fits into "bottom-up" approaches to infrastructure development, and is likely to be successful particularly in low-income communities. It is also important that the opinions of local residents on waste management issues be elicited through ways that ensure that the broad preferences of households are represented rather than those of community heads selectively consulted. For instance, a random sampling of households in a city on waste management approaches and cost implications may be an appropriate way of gauging public preferences and likely responses to particular privatization initiatives.

In low-income urban communities such as Tonkolonko, Kenende, Batenafagui and Dandaya, there is a need to encourage community/private operator partnerships. This can encourage the adoption of initially "sub-optimal" service standards compared to conventional services but which, nonetheless, are good enough to foster an improvement in environmental health conditions. For instance, instead of house-to-house refuse collection, the use of neighbourhood bins which are frequently emptied is a more feasible option in the suburban areas with problems of access.

In low-income communities, it may be reasonable to tolerate minimal service standards that meet environmental health requirements, which can then be upgraded over time and with the availability of funds. This approach is suggested not necessarily because it might be argued that infrastructure provision should respond to demand but rather because of concerns about ensuring that some areas in cities, particularly suburban localities as in the case of Faranah, Labé, and Mamou, should not be left without services. Moreover, service standards adopted by low-income communities should reflect a compromise between conventional minimum standards and services consistent with the satisfaction of basic needs, and the cost of such services in relation to the users' ability to pay.

Community Participation Approach (CPA)

Shiyanbade (2019, 2020) and Sano (2022) observes that community participation is a complex concept which has been associated with a wide range of interpretations. There are those who see it as a continuum to illustrate the direct relationship between interpretation and development analysis. Community participation (CP) can be simply be define as a process by which individuals and families assume responsibility for their own social, economic, political welfare. Community develops capacity to contribute to their own and the community's development such as solid waste management in collaboration with other stakeholders, especially the government, as the principle custodian of public interests.

The role of the government and other stakeholders is to ensure that community participation, as a process, is incorporated to mass education and awareness creation programme to empower the community members to realize the developmental problem through learning, seeing and doing and to define and play their roles in society that are likely to assume for better performance (Rugumamu, 2000 cited in Sano, 2022).

The United Nations Human Settlements Programme (UNCHS) defines community participation as the voluntary and democratic involvement of beneficiaries in contributing to the execution of a project, in sharing the benefits derived therefore and in making decisions with respect to setting goals, formulating the project and in implementing the plans (UNCHS, 1994). Since it includes voluntary agencies such as NGOs and CBOs, participation has become a moral obligation and a precondition for empowerment, facilitates

development itself (Oloyede, 2017).

Community participation is viewed as a process where beneficiaries or stakeholders influence the direction and execution of a development project. Participation in this sense occurs in the form of input or contribution towards a project in order to increase its chances of success and a correspondingly, personal economic benefit. It involves decision-making process in implementing and evaluating such projects (Meshack & Sheuya, 2001). To others, the concept "community participation" entails involving project beneficiaries in the planning and implementation process, frequently through fairly brief and selective consultation procedures (Nanai & Nyirabu, 2001).

The above definitions are not conflicting rather they are complement one another. This is so because it is in the interest of central and local governments to involve their clients (the community) in designing and creating support programmes and sharing the responsibility for short-term and long-term outcomes of development effort (UNCHS, 1994 cited by Oloyede, 2017; Sano, 2022).

The success of privatization and voluntary organizations in social infrastructure provision in a Neo-Liberalism domain will depend on the right direction of the decentralization. The formation of CBOs according to UNCHS (1994) is inevitable in that if a community does not organize itself, it is difficult to achieve the collective action necessary in negotiations with authorities and even groups among themselves such as tenants and property owners (UNCHS, 1994; Sano, 2022). However, effective community participation in social services provision goes beyond the poor urban residents organizing themselves into groups. It requires meeting other basic conditions such as collective action which involve community based organizations, private and public sectors in municipal solid waste management under market oriented regulation.

As Sano (2022) emphasizes, sustainable development becomes possible when local community-based initiative is supported and enabled by the state and the market. This brings in the mutual relationship between "community participation" and "community empowerment" in a broad perspective of social "development." Thus a participatory process is intended to bring about social and material advancement for the majority of the people gaining greater control over their environment. Since the mid-1980s participation and empowerment have been perceived mutually inclusive in social development context (Green, 2000). It is so because they identify with the poor who for quite long, have been marginalized by centralized decision-making systems (Green, 2000).

Community Participation Approach (CPA) is operationally defined as a continuum in social development. It requires, among other things, governments to provide an enabling environment for sustainable community participation in municipal solid waste management. According to Meshack and Sheuya, (2001), there are three main types of community participation in social development issues. These include: community financial contribution, community self-help; and community consultancy (participation by consultation); briefly explained as follows; Community consultation is a type of participation which usually involves the exchange of ideas with either leaders of the community/ representatives of the community or a group of the community. Often, the external agents would define the problem and the solutions.

They may listen to the views presented by the community members and they may as well make some modifications to the original views in accordance with the responses made by the people but they are not in any way obliged to include them. Normally, the external agents merely go to seek approval of decisions which have been made by other people elsewhere. They also ask them to implement decisions which have been decided by other people for them.

Financial contribution by communities refers to the mode of community participation, which is often seen in

programmes and projects. In this type, communities are requested to contribute in cash or kind towards the project either before the project starts or during the implementation period. Importantly, the community has to be consulted but it is better if they participate fully in the whole decision process which leads towards making a decision that every member of the community contributes towards the project's activity.

Community self-help is the type of community participation which demands that the community not only participates in consultations and contributions but also participates fully in other project stages. They include identification, design, planning, implementation, management, and monitoring and evaluation of their project activities. This mode of participation, assumes that the community has "identified" that problem and that community wants to solve the problem through its own resources and leadership. The government and other organizations are only there to supplement the people's efforts and not to replace them.

WASTE MANAGEMENT THEORY

The Waste Management Theory (WMT) gives a more comprehensive account on waste and the aims of its management. Waste Management Theory is "founded on the expectation that waste management is to prevent waste causing harm to human health and the environment" (Oloyede, 2017). The theory points out that improper definition of waste is a major issue that must be addressed. It states that if the concept of waste is well defined, it will not only aid its management but also sustain it. Most of the definitions that emerged from extant literature may, however, "conflict with the goals of waste prevention, because something that already exists cannot be prevented from arising" (Oloyede, 2017).

In essence, it means that if a particular material is labelled a waste, then, it will be treated as one. The theory is founded on the proposition that "the way we describe a target prescribes action upon it, which implicates that sustainable waste management depends greatly upon how waste is defined" (Oloyede, 2017). The implication of the above is that despite the will to prevent waste, we keep amassing waste. The definition given to waste makes its management difficult, hence makes a sustainable waste management system a ruse. The theory advocates for a novel and vigorous definition for waste; a definition that will explain why wastes are created and proffer effective waste management option.

Traditionally, management of risk, compliance and short term environmental protection are the main target of waste management (Esmaeilian, *et. al.*, 2018). Authors in the field of waste management reviewed and reshape the traditional waste management opinion to one that will productivity centred. It was designed to relate more with the ecosystem, eco-innovations and cater for long-term environmental protection. In the views of Esmaeilian, *et. al.*, (2018), the pivotal theme of practical waste management is quantification of waste, properties of waste and the practices of waste. The three ways of waste management practices include the following: "prevention practices comprising strategies on waste minimization; end-of-pipe strategies involves recovering the economic value on waste through waste separation, recycling, proper landfilling, incineration; and environmental restoration practices, aimed at repairing leakages and damages to the environment" (Lagman-Bautista, 2020).

Waste Management Theory according to Pongrácz quoted by Odewunmi (2013) has the following practical values: "giving answers to conceptual questions by explaining waste and concepts; providing a guide for choosing waste management options; providing a foundation for how and when to select and integrate waste management options; predicting the outcomes of the use of waste management actions; and aiding legislation in how to prescribe activity for/upon waste" (Pongrácz, 2002; Odewunmi, 2013). Waste Management Theory was as a matter of fact segregated from waste management practices. It symbolizes a further profound description of waste; happenings upon waste; functions of waste; and goals of waste management.

CONCLUSION

The paper has been able to fill an important gap in literature as it revealed the strategies employed by the Government of Republic of Guinea, in Guinea Conakry, in the management of their wastes. It has also established the level of relationship among the agencies of government, private companies and communities' participation in the management of solid waste in Guinea Conakry. Thus, the study concluded that there have been improvements in the management of waste collection in Conakry since the introduction of private managers in the waste management system.

POLICY RECOMMENDATIONS

In the view of aforementioned analysis and conclusion, the paper suggested the following policy recommendations with a view to improving current status of Public-Private Sectors Participation on Municipal Waste Managers in Conakry. It is therefore recommended that existing governmental and non-governmental efforts should be strengthened with a view to stemming the tide of the factors impeding performance of the agency and people's disposition on municipal waste management.

1. Government should review its existing laws, policies and structures on public-private sector participation in order to ensure effectiveness and efficiency of municipal waste management in the country.
2. Government should provide conducive business environment and atmosphere for the private investors to come in through provision of good and motorable roads network for easy movement of refuse collected by the waste managers.
3. Government is educating the populace and creating awareness on proper waste disposal, the government should strive more in encouraging the households on prompt payment of services to the private companies in Conakry.
4. Government should encourage and empower more private sector participation on municipal waste management through the ministry of environment in the area of logistics for proper monitoring of the industry.
5. Government should embark on action plan that may serve two beneficial purposes by encouraging some of these unemployed youths to partner with it, through the introduction of "recycle centers" in each political ward so as to encourage young entrepreneurs.
6. Lastly, thorough public enlightenment campaigns to discourage such wrong practices should be vigorously pursued by the appropriate waste handlers.

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