

An Evaluation of the Management of Solid Waste in the Town of Limbe and Buea: Non-Legal Measures

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Abstract

This study critically evaluates the management of solid waste in the towns of Limbe and Buea, Cameroon, with a specific focus on non-legal measures. The increasing volume of solid waste in these urban centers, driven by rapid urbanization, population growth, and changing consumption patterns, poses significant environmental, public health, and aesthetic challenges. While legislative frameworks exist at national and municipal levels to address waste management, their implementation has been largely insufficient, prompting the need to examine alternative or complementary strategies outside the legal domain. The research investigates the effectiveness of non-legal measures—such as public awareness campaigns, community-based initiatives, educational programs, private sector participation, informal sector involvement, and the role of non-governmental organizations (NGOs)—in promoting sustainable waste management practices. A mixed-methods approach was adopted, combining field observations, unstructured interviews of stakeholders, and secondary data analysis to assess how these measures are operationalized in both towns. Findings reveal that while the legal infrastructure remains underutilized, non-legal interventions have played a crucial role in mitigating waste-related issues. Community mobilization efforts in neighborhoods, school-based sensitization campaigns, and partnerships with waste collection firms have yielded varying degrees of success in improving waste disposal habits and reducing environmental degradation. However, the study also uncovers critical limitations such as poor coordination among stakeholders, inconsistent funding, limited technical expertise, and a lack of long-term strategic planning. The research concludes that although non-legal measures cannot fully substitute for robust legal enforcement, they provide essential and often more adaptable mechanisms to engage communities and stakeholders in waste management. It recommends a hybrid approach that strengthens these grassroots initiatives while simultaneously improving the legal and institutional frameworks to foster a more sustainable and inclusive waste management system in Limbe and Buea.

Keywords: evaluation, management of solid waste, town of Limbe and Buea, non-legal measures

1. Introduction

In Cameroon, there is a compendium of legal texts protecting the environment. Some of these legal texts include the Cameroon Constitution of 18th January 1996; the Law on explosive substances or detonators which is implemented by the 1981 Decree,¹ to lay down the terms of implementation of Law No.77/15 to regulate explosive substances and detonators; the 1996 Law² relating to Environmental Management in Cameroon; the 1994 Law³ to lay down Forestry, Wildlife and Fisheries Regulations; and the 1998 Law⁴ to lay down

¹ N°. 81/279 of 15 July 1981 to lay down the terms of implementation of Law No.77/15 to regulate explosive substances and detonators.

² Law N°. 96/12 of 5th August 1996 relating to Environmental Management in Cameroon.

³ Law N°. 94/01 of 20 January 1994 to lay down Forestry, Wildlife and Fisheries Regulations.

Regulations Governing Water Resources in Cameroon. It is also revealed that the Ministry of Environment and Nature Protection carries out its activities of protecting the environment with regards to the 1996 law on environmental management as its backbone. The Ministry focuses on three main sectors which are to fight against climate change and desertification, sustainable management of biodiversity and the fight against pollution, harmful chemicals and dangerous substances in order to ensure a sustainable environment.

Other institutions include the Ministry of Environment, Nature protection and sustainable Development (MINEPDED-Cameroon). MINEPDED history over the years in protecting nature and sustainable development has the attentions of Cameroon public authorities. The actual consideration of environmental issues by the government is based on the United Nations Conference on Environment (UNCED) or Rio de Janeiro Conference. It is the starting point for a new dynamic in the national environmental policy. From then on, environment and Sustainable development will be an integral part of public policies in Cameroon¹. Before the 1992 Rio summit, Cameroon had participated in numerous international meetings and set up institutions to monitor the evolution of the environment in Cameroon, under the direction of the Environment and Human establishment set up in 1984 within the Department of spatial planning and Environment, Ministry of Planning and Regional Development (MINEPAT), the realization of concrete actions carried out with a view to ensuring sustainable development is hardly perceptible. The Ministry of Environment, Nature protection and sustainable development was created as a result of the deficiencies of the ministry of environment and Forest. MINEP was created on the 8th of December 2004. ²The creation of MINEP is part of the concern to bring the contribution of Cameroon to the major world concerns, relating to the fight against the continuous degradation of the environment. MINEP's mission following the 2004 Decree³ establishing MINEP, 2005 decree,⁴ concerning the organization of MINEP, 2005 decree⁵ amending the provisions of the previous decree.

The main mission of MINEP is the development, implementation and monitoring the interventions of regional or sub regional cooperation bodies in the field of the environment. The implementation of this mission implies the definition of rational management measures of the natural resources, the sensitization of the population in the management, the protection and the restoration of the environment, the negotiation and follow-up, the implementation of international conventions and agreement relating to environmental management and the fight against pollution of all forms. MINEP's missions derive from the status conferment on it by the creation decree. They are influenced by the national and international context of environmental protection and as such dynamic. According to the problems of the moment, MINEP determines the priority axes that will guide a policy document. In 2009, MINEP defined a program which integrates six axes related to the recommendations attained in the Poverty Reduction Strategy Paper (PRSP); improved environmental management of ecosystems and conservation of biological diversity; promotion of international cooperation on the environment and nature protection; sensitization of the population to the restoration of the environment: pollution, Promotion of urban development and environmentally sustainable industrial development.

Waste management is still regarded as an activity centered on collecting and dumping somewhere else, a practice that conforms to the traditional approaches to Waste management in developing economies where cheap solutions are the principal drivers. The sustainable management of solid waste streams is imperative to minimize environmental and public health risks worldwide.

A key driver towards increased efficiency in solid waste management, is the involvement of all stakeholders, including the waste generators, waste processors, formal, informal sectors and organizations. With respect to the area of ecological sustainability, SWM systems need to work towards the following goals: to minimize the amount of waste generated; to maximize reuse and recycling; to dispose of remaining waste in a controlled fashion in order not to exceed the capacities of local sinks.⁶

2. National Legal Instruments Guaranteeing the Management of Waste in Cameroon

⁴ Law N°.98/005 of 14 April 1998 to lay down Regulations Governing Water Resources in Cameroon.

¹ Ministry of Environment, Nature Protection and Sustainable development (MINEPDED). (n.d.). Available at <https://www.devex.com/organisations/ministry-of-envrionemnt.Nature-protection-and-sustainable-development-Minepded-Cameroon-126588>. Accessed on the 6th May 2023.

² Decree No, 2004/320 of 8 December 2004.

³ Decrees No 2004/320 of 8 December 2004.

⁴ No 2005/117 of April 14, 2015.

⁵ No 20045/496 of 31 Decembers 2005.

⁶ Isa Baud, (2004). Markets, Partnerships and Sustainable Development in Solid Waste Management; Raising the Questions. *The Geo Journal Library*, 76, p. 1-18:14.

There exist a compendium of legal provisions which have been put in place by the Cameroonian legislator to ensure the adequate and appropriate protection and management of waste in Cameroon. The subsequent subtitles provide a detailed analysis of the various laws.

2.1 Law on Toxic and Hazardous Waste, 1989

According to this law,¹ the introduction, production, storage, possession, transport, transit and discharge on the national territory of toxic and/or hazardous wastes in all their forms shall be prohibited.² For a better understanding of the scope of application of this law, it provides that toxic and/or hazardous wastes shall mean constituents containing flammable, explosive, radioactive, toxic substances that may be dangerous to the life of humans, animals, plants and the environment.³

To ensure compliance and deter the population as well as industries from illegal and unauthorised disposal of wastes; this law provides sanctions to persons that contravene its provisions in its article 4 which provides that:

“(1) Any unauthorized person who shall introduce, produce, store, possess, transport, transit with or dump toxic and/or hazardous waste in all its forms in Cameroonian territory shall be punishable by death penalty; imprisonment of 5 (five) to 10 (ten) years and a fine of 5 000 000 (five million) CFAF to 500 000 000 (five hundred million) CFAF. This shall also apply to any unauthorized person who shall not immediately dispose of toxic and/or hazardous waste generated by his business under the conditions defined in this Law and subsequent regulations. (2) The provisions of Sections 54 and 90 of the Penal Code relating to suspended sentences and mitigating circumstances shall not be applicable. (3) Where the offense is committed by a legal entity, the criminal responsibility shall lie with the natural person, whether or not the latter manages, supervises or controls the activity of that legal entity. The legal entity in question shall be jointly and severally liable with the person or persons sentenced to pay fines, civil compensation, as well as costs and expenses.”⁴

Aside, the sanctions provided for in article 4 of the above cited law, also makes mention of measures which the court can impose on the establishment, so as to repair the damage caused. These measures are outlined in article 5 which provides that;

“The court referred to shall order any person found guilty to have introduced, produced, stored, kept, transported, transited with or dump toxic and / or hazardous waste, to clear them off immediately and to restore the premises to their former state. The same court may, in addition, order the closure of the establishment”.⁵

2.2 Law Relating to Environmental Management, 1996

This law⁶ was promulgated by the President of the Republic on January 30, 1995. It aims at providing adequate guarantee for the protection and management of the environment in Cameroon. The National Environmental Management Plan related to the protection of the atmosphere, marine and continental waters, soils, sub soils and human settlements; regulates installations that pose danger to the public, stipulates modalities for the conduct of Environmental Impact Assessments (EIA) and categories of operations subject to EIA; Specifies air emission and waste water discharge standards; Sets conditions for issuing authorizations for allotment and management of land for uses, i.e. industrial, urban etc; conditions for waste handling (e.g. collection, storage, recycling, etc.); prescriptions relating to waste elimination by persons producing or treating waste; stipulates the terms of reference for the supervision of municipal dumps by the competent authorities.⁷

Pursuant to article 4 of this law, waste management shall be the collection, transportation, recycling and elimination of waste, including the monitoring of disposal sites. To ensure that appropriate measures are provided to treat harmful waste, this law provides in its article 42 the means by which waste should be treated.⁸ Also, as provided for in Article 57, the harmful and/or dangerous chemical substances which are dangerous to

¹ Law No.89/27 Of 29 December 1989 On Toxic And Hazardous Wastes.

² Article 1 of Law No.89/27 Of 29 December 1989 On Toxic And Hazardous Waste.

³ Article 2 of Law No.89/27 Of 29 December 1989 On Toxic And Hazardous Waste.

⁴ Article 4 of Law No.89/27 Of 29 December 1989 On Toxic And Hazardous Waste.

⁵ Article 5 of Law No.89/27 Of 29 December 1989 On Toxic And Hazardous Waste.

⁶ LAW NO. 96/12 OF 05 AUGUST 1996 RELATING TO ENVIRONMENTAL MANAGEMENT.

⁷ Decree No. 2005/0577/PM of 23/02/05, Order No. 006/MINEP of 08/03/05.

⁸ Article 42 of Law No. 96/12 Of 05 August 1996 Relating To Environmental Management on harmful and/or dangerous chemical substances, Plants Classified As Dangerous Waste shall be treated in an ecologically rational manner to eliminate or curb their harmful effects on human health, natural resources, the fauna and flora, and on the quality of the environment in general.

human health, the natural environment shall be controlled and monitored by administrative units.¹

This law also provides for compensation by a defaulter in its Article 48: (1) which states that “When waste is abandoned, dumped or processed in violation of the prescriptions of this law and its enabling regulations, the authority vested with police powers shall automatically eliminate the said waste at the expense of the said producer, after charging the producer to pay. (2) The Administration shall oblige the producer to deposit to a public accountant a sum corresponding to the cost of the work to be done. The competent public accountant shall be appointed by order of the Minister in charge of Finance. Article 49: Waste immersion, incineration or elimination by any procedure in the continental and/or maritime waters under Cameroonian jurisdiction shall be strictly prohibited, duly taking into account the international commitments of Cameroon. Article 50: (1) The obligation of general maintenance which the public land dealers are subject to shall include those to eliminate, cause to be eliminated, or recycle waste contained in the land. (2) The dumping of waste on public land shall be strictly prohibited, including public maritime land such as defined by the laws in force. Article 51: (1) Waste shall only be buried in the sub-soil with the prior joint authorization of the competent administration which shall lay down the technical prescriptions and special rules to observe. Article 51(2) the burial of waste without the authorization provided for in sub-paragraph (1) of this article shall lead to an excavation of the waste by the person who buried it, or, after a charge to pay from the competent Administration, in collaboration with the other Administrations concerned.”²

It also provides in Article 52(1) that areas damaged by work done without authorization or without observing prescriptions and sites contaminated by midnight dumps or unauthorized buried waste shall be rehabilitated by officials or the closest possible restoration to their original state. (2) Where a notice of the competent administration has no follow-up for one year, the State shall rehabilitate the site in collaboration with the other administrative units concerned. Article 53: The discharge of a pollutant into the air, water or soil shall be subject to an authorization. The conditions for the issue of this authorization shall be laid down by an enabling decree of this law.

Again, Article 77 (1) of this law establishes the liability of those who violate this law and outlines that: “Without any prejudice to the sanctions applicable within the framework of penal liability, any person transporting or using hydrocarbons or chemical, harmful and dangerous substances, or any operator of a classified establishment who has caused body or material damage directly or indirectly linked to the exercise of the above mentioned activities shall be liable for damages without the need to prove his offence”. Article. 71 (2) the reparation of the damage mentioned in Article. 71 (1) of this article shall be jointly borne when the author of the damage proves that the body or material damage is the fault of the victim. It shall be exonerated in the event of a “force majeure.”³

Article 78 Law Relating to Environmental Management, 1996: When the constituent elements of the offence originate from an industrial, commercial, cottage, industrial, or agricultural establishment, the owner, operator, director or manager as the case might be, may be liable to fines or legal fees owed by the authors of the offence, and to the rehabilitation of the sites. Article 79 mentions the punishment in terms of fine and imprisonment term by providing that: “the following persons shall be liable to a fine of 2,000,000 (two million) to 5,000,000 (five million) CFA francs and a prison sentence of 6 (six) months to 2 (two) years or only one of these two sanctions: — Any person having implemented a project needing impact assessment, without carrying out such assessment; Any person having implemented a project that does not conform to the criteria, norms and measures spelled out for the impact assessment; — Any person having obstructed the checks and analyses provided for by this law and/or its enabling instruments”.

Article 80: Any person who dumps toxic and/or dangerous waste on Cameroonian territory shall be liable to a fine of 50,000,000 (fifty million) to 500,000,000 (five hundred million) CFA francs and life imprisonment.

Article 81 (1) Any person having imported, produced, owned and/or used harmful or dangerous substances in violation of the regulations shall be liable to a fine of 10,000,000 (ten million) to 50,000,000 (fifty million) CFA francs and a prison sentence of 2 (two) to 5 (five) years or only one of these two punishments. Article 81 (2) In the event of subsequent offences, the maximum total amount of the sanctions shall be doubled.

Also, as enshrined in Article 82 (1) Any person having polluted, or degraded soils and sub-soils, altered the quality of air and waters in violation of the provisions of this law shall be, liable to a fine of 1,000,000 (one million) to 5,000,000 (five million) CFA francs and a prison sentence of 6 (six) months to 1 (one) year or only

¹ Article 57 Of Law No. 96/12 Of 05 August 1996 Relating To Environmental Management on harmful and/or dangerous chemical substances.

² Article 45 (1) of Law No. 96/12 Of 05 August 1996 Relating To Environmental Management.

³ Article 77 Law No. 96/12 Of 05 August 1996 Relating To Environmental Management on harmful and/or dangerous chemical substances.

one of these two. 82 (2) In the event of subsequent offences, the maximum total amount of the sanctions shall be doubled. Article 83 (1) Any captain of a ship who is guilty of dumping hydrocarbons or other marine environmentally harmful liquid substances into marine waters under Cameroonian jurisdiction in violation of the provisions of this law and its enabling instruments or international conventions relating to the prevention of marine pollution to which Cameroon is a party, shall be; liable to a fine of 10.000.000 (ten million) to 50,000,000 (fifty million) CFA francs and a prison sentence of 6 (six) months to 1 (one) year or only one of these two sanctions.

Article 86: The sanction shall be doubled when the above-mentioned offences are committed by an official of the Administration in charge of environmental management, or with their complicity.

Article 84: (1) Any person having operated a plant or used a movable object in violation of the provisions of this law shall be liable to a fine of 500,000 (five hundred thousand) to 2,000,000 (two million) CFA frs and a prison sentence of 6 (six) months to 1 (one) year, or only one of these two sanctions. (2) In the event of subsequent offences, the maximum total amount of the sanctions shall be doubled.

2.3 Law to Lay Down Regulations Governing Water Resources, 1998

The 1998 law¹ aims at providing protection and sustainable management of water resources in Cameroon, in this regard, the law shall determine, in line with the principles of environmental management, the general legal framework governing water resources.² The scope of application of this law is governed by article 3 of this law which provides that: “in this law and its implementation instruments, surface water shall mean run-off water; a) ground water shall mean infiltration water; b) spring water shall mean water sold for human consumption, containing traces of minerals or not, with or without soda, irrespective of their therapeutic properties; d) mineral water shall mean ground water containing dissolved minerals with therapeutic properties. In its Article 6, this law provides that: (1) Any natural person or corporate body owning facilities that may cause water pollution shall take all the necessary measures to limit or contain their effects. (2) Any person producing or possessing waste shall be responsible for disposing of or recycling such waste, or having it disposed of or recycled at facilities approved by the services in charge of classified establishments, after the required recommendation of the services in charge of the environment. Furthermore, the person shall, barring requirements of confidentiality, inform the public of how the production, possession, elimination or recycling of waste may affect water, the environment and public health, as well as of the measures designed to prevent such or to compensate for the damaging effects thereof. (3) Also, it shall be forbidden to wash or service motor vehicles, internal combustion and similar engines close to water points.

Article 14: (1) Any person who causes bodily or material damage as a result of the poor quality of the water he distributes for consumption shall be liable for damage, regardless of whether or not an offence is proven, without prejudice to the penalties applicable in respect of criminal responsibility and notwithstanding the inspection carried out by the services in charge of control.

Article 15: (1) A prison term of from 2 (two) to 5 (five) years and a fine of from 5,000,000 (five million) to 10,000,000 (ten million) CFA francs or either of these two penalties only shall be imposed on any person who: — collects surface water or ground water in violation of the provisions of this law and/or its implementation instruments; — collects surface or ground water in a way that is inconsistent with the criteria, standards and measures provided in the impact survey; prevents the controls, supervision and analyses provided for by this law and/or its implementation instruments; runs a facility for the catchment, treatment and storage of water, in violation of the provisions of this law and/or its implementation instruments; offers drinking water to the public without complying with the quality standards in force; violates a protected area around water catchment, treatment and storage points. (2) In the event of a repeated offence, the maximum penalty provided for in Subsection (1) above shall be doubled.

The sanctions for defaulters of this law are provided for in Article 16: which is to the effect that (1) whoever pollutes and alters the quality of water shall be punished with imprisonment of from 5(five) to 15(fifteen) years and with a fine of from 10,000,000 (ten million) to 20,000,000 (twenty million) CFA francs. (2) In case of repeated offence, the maximum penalty provided for in Subsection (1) above shall be doubled.

2.4 Law Relating to the Installation of Classified Establishments 1998

This law was adopted 1998,³ as stipulated in this law, two types of classified establishments (Class I and Class II). Dump sites are classified as Class II establishments for which operation and management must follow

¹ LAW NO. 98/005 OF 14 APRIL 1998 TO LAY DOWN REGULATIONS GOVERNING WATER RESOURCES.

² Article 1 of Law No. 98/005 Of 14 April 1998 To Lay Down Regulations Governing Water Resources.

³ Law No. 98/15 of 14/07/98 Law Relating To the Installation of Classified Establishments.

prescribed guidance. It sets out the regulations governing the installation and exploitation of facilities classified dangerous, obnoxious and polluting.¹

2.5 1998 law Relating to Establishments Classified as Dangerous, Unhealthy or Obnoxious

This law was adopted in Yaounde on 14th April 1998.² This law governs the framework of the principles of environmental management and protection of public health, establishments classified as dangerous, unhealthy or obnoxious.³ This law also provides for the various sectors which fall under the auspices of this law and which shall be subject to the provisions of this law namely; factories, workshops, depots, building sites, quarries and, in general, industrial, handicraft or commercial installations operated or owned by any natural person or corporate body, private or public, and constituting or potentially constituting either a danger to health, safety, public hygiene, agriculture, nature and the environment in general, or an inconvenience to the neighbourhood.⁴

Article 17: Within the meaning of this law and its instruments of application, inspection and control of a dangerous, unhealthy or obnoxious classified establishment shall refer to all the operations carried out within the establishment for administrative and technical supervision purposes, and designed to avert the dangers and inconveniences.⁵

As enshrined in Article 19: (1) The task of the officials referred to in Section 18 above shall consist in: controlling the functioning of classified establishments; auditing them and drawing up reports thereon; ensuring compliance with the technical prescriptions and with the provisions of this law and of its instruments of application. (2) They shall have the right to visit establishments subject to their supervision at any time, and at least once every six months.

To ensure compliance with this law, its Article 28 provides for administrative penalties for defaulters which states that “(1) Without prejudice to the penalties provided for under this law, where an inspector responsible for controlling classified establishments records the non-compliance with the conditions required of the operator, the minister in charge of the said establishments shall serve the operator with a notice, requesting him to fulfil the conditions within a time-limit to be determined by him but, in any case not exceeding three months. (2) If, upon expiry of the above time-limit, the operator fails to comply, the minister in charge of classified establishments may: automatically execute the prescribed measures at the operator’s cost; oblige the operator to pay to the public accountant an amount corresponding to the cost of work to be carried out, which amount shall be reimbursed to the operator as the work progresses and, if need be, collect such funds by force; suspend the activities of the establishment by order until the imposed conditions are complied with.”

2.6 Decree to Amend and Supplement Provisions of Article 3 (1) of the 1994 Decree to Establish a National Advisory Commission for Environment and Sustainable Development

This decree was adopted in 1999,⁶ and pursuant to Article 1 of this decree, article 3 of this decree provides for decree No. 94/259/PM of 31 May 1994 to establish a National Advisory Commission for the Environment and Sustainable Development as amended and supplemented as follows: Article 3: (1) (new) Presided by the Prime Minister or by delegation of the latter, by the Minister in charge of environment, the National Commission shall comprise the following members: a representative of the Prime Minister’s Office; a representative of each of the ministries, as the case may be, in charge of: environment and forestry; territorial administration; agriculture; industrial and commercial development; livestock, fisheries and animal husbandry; defence; national education; higher education; youth and sports; regional development; economy and finance; mines, water resources and power; scientific and technical research; external relations; tourism; public works; transport; town planning and housing; public health; women’s empowerment; social affairs; urban affairs; a member of the National Assembly; a senator; a representative of the Cameroon Chamber of Commerce, Industry and Mines; a representative of the Chamber of Agriculture, Livestock and Forestry; three members of religious denominations, each representing the Catholic, Protestant Churches and Islam; three representatives of non-governmental organizations concerned with environmental and sustainable development issues; two representatives of donors concerned with environment and sustainable development.

¹ Decree No. 99/818/PM of 9/11/99, Order No. 13/MINMEE/DMG/SL of 19/04/77, 02/MINMEE/DMG/SDAMIC of 04/01/99.

² 1998 LAW NO. 98/015 OF 14 July 1998 Relating to Establishments Classified as Dangerous, Unhealthy or Obnoxious.

³ Article 1 Law No. 98/015 Of 14 July 1998 Relating To Establishments Classified As Dangerous, Unhealthy Or Obnoxious.

⁴ Article 2 of law No. 98/015 Of 14 July 1998 Relating To Establishments Classified As Dangerous, Unhealthy Or Obnoxious.

⁵ Article 17 of law No. 98/015 Of 14 July 1998 Relating To Establishments Classified As Dangerous, Unhealthy Or Obnoxious Inspection And Control Of Classified Establishments.

⁶ Decree No. 99/780/Pm of 11 October 1999 To Amend And Supplement Provisions Of Article 3 (1) Of Decree No 94/259/Pm Of 31 May 1994 To Establish A National Advisory Commission For Environment And Sustainable Development.

2.7 Decree Laying down Terms and Conditions of Setting up and Operating Establishments Classified as Dangerous, Unhealthy or Obnoxious

This decree was adopted by the Prime Minister in Yaounde on 9 November 1999,¹ to lay down the procedures for setting up and operating establishments classified as dangerous, unhealthy or obnoxious.² Article 2 of this decree outline the modalities and procedure to be followed by any person who wishes to set up and operate establishments classified as dangerous and unhealthy. It outlines that: (1) Any person wishing to set up and operate an establishment subject to authorization shall address an application to the Minister in charge of classified establishments. This application, the original of which shall be stamped at the current rate, shall be filed in five copies and shall mention the surname, first names, domicile, filiation and nationality if it is a natural person; the name or corporate name, legal status, address of the registered office, composition of capital, if any, as well as the position of the signatory of the application for corporate bodies; and the location of the establishment; the nature and volume of the activities that the promoter proposes to carry out, as well as the items of the nomenclature in which the establishment is to be classified; the manufacturing processes that will be implemented, the materials used and the products manufactured by specifying their chemical composition and their biodegradable character. In this case, the promoter may send in a single copy and in a separate envelop confidential information that may result in the disclosure of manufacturing secrets. (2) Where the setting up of an establishment requires prior obtaining of a building permit, the application for authorization shall be accompanied by the said permit or, where appropriate, proof of filing of the permit application, with the understanding that a building permit is not worth authorization to set up or to operate.³

Article 3 further enumerates the various documents to be provided by the applicant outlined as follows “Each copy of the application for authorization shall be accompanied by the following documents: – a map at a scale of 1/50,000, approved by a sworn surveyor of the cadastre, on which shall be indicated the location of the proposed facility; – a 1/10 000 scale plan, approved by a sworn surveyor of the cadastre, on which shall be indicated the surroundings of the establishment on a radius of 100m. On this plan shall be indicated all buildings with their uses, railroads, public roads, water points and waterways; – an overall plan at 1/200 scale indicating the projected provisions and distributions of the establishment and its various premises; – an environmental impact assessment carried out in accordance with the laws and regulations in force; – a hazard study carried out in accordance with the laws and regulations in force; – an emergency plan drawn up in accordance with the laws and regulations in force; plans, sections and technical documentation of equipment; a receipt attesting the payment to the public treasury of the right to issue the authorization to operate provided for in Article 27 below”.

Article 4 (1) Applications for the authorisation to operate first-class establishments shall be subject to public inquiry, opened by the Minister in charge of dangerous, unhealthy or obnoxious establishments who shall appoint investigating commissioners for that purpose.

Article 15 Before deciding on the operator’s declaration, the Minister in charge of establishments classified as dangerous, unhealthy or obnoxious shall communicate for opinion a copy of the latter to the council where the establishment shall be located, to the administrations in charge of environment, health and, where appropriate, agriculture, livestock, and industrial and commercial development. The aforementioned administrations shall take a decision within ten days from the date of their referral. After this deadline, their observations shall not be taken into consideration.

Article 16 (1): The Minister in charge of establishments classified as dangerous, unhealthy or obnoxious shall by decision, issue a receipt of the declaration within a maximum period of fifty days from the date the declaration was filed in his services and shall provide the applicant with a copy of the general requirements concerning the classified activity. After this deadline, the receipt of the declaration shall be deemed acquired.

Article 17 (1): To prevent either hazards to health, safety, public hygiene, agriculture, nature and the environment in general, or inconveniences for the comfort of the neighbourhood, additional requirements may, as necessary, be issued against the inconveniences inherent in the operation of a second-class establishment.

Article 27 (1): Any establishment classified as dangerous, unhealthy or obnoxious shall be subject to pay a fee for authorization to operate or the declaration receipt the amounts of which shall be fixed as follows: 500,000 (five hundred thousand) CFA Francs for an establishment subject to authorization; 200,000 (two hundred

¹ Decree No. 99/818/Pm Of 9 November 1999 To Lay Down Terms And Conditions Of Setting Up And Operating Establishments Classified As Dangerous, Unhealthy Or Obnoxious.

² Article 1of Decree No. 99/818/Pm Of 9 November 1999 To Lay Down Terms And Conditions Of Setting Up And Operating Establishments Classified As Dangerous, Unhealthy Or Obnoxious.

³ Article 2 of Decree No. 99/818/Pm Of 9 November 1999 To Lay Down Terms And Conditions Of Setting Up And Operating Establishments Classified As Dangerous, Unhealthy Or Obnoxious.

thousand) CFA Francs for an establishment subject to declaration.

Article 28: (1) Any establishment classified as dangerous, unhealthy or obnoxious that pollutes the environment, shall be subject to pay annual pollution tax whose multiplier coefficient, related to the typology and quantity of solid, liquid or gaseous discharges from the establishment is stipulated in the Annex of this Decree.

2.8 Conditions for Approval of Physical Persons or Legal Entities Operating Pollution Control Laboratories

Adopted in Yaoundé,¹ on the 9 November 1999 Article 1 of this decree lays down the conditions of approval of physical persons or legal entities operating laboratories for quality and quantity control of solid, liquid or gaseous effluents discharged by establishments classified as dangerous, unhealthy or inconvenient.

Article 2 provides that the control of effluents discharged by establishments classified as dangerous, unhealthy or inconvenient shall be a prerogative of the administration in charge of classified establishments.

Article 3 (1) The approval referred to in Article 2 above shall be granted by Order of the Minister in charge of classified establishments, after the opinion of the competent technical administrations, at the request of the applicant for a period of three years renewable. (2) The approval shall be strictly individual, non-assignable, and non-transferable and shall not be rented.

Article 14 provides for infringement and sanctions for persons and corporate bodies who infringe this decree and provides that: 14 (1) If the provisions of this Decree are not complied with, the Minister in charge of classified establishments may suspend the accreditation for a period not exceeding one year in one of the following cases: violation of one of the provisions of Articles 7 and 11 of this Decree and its implementing instruments provide that non-payment of taxes owed; publication of erroneous control results; forgery and faking in terms of control of discharge; no repayment to the public treasury of sums due: ultimate withdrawal of the approval in case of cessation of activities, bankruptcy, liquidation and, in general, in case of repeated violation of the provisions of this Decree and of its implementing instruments. (2) Any decision to suspend or withdraw shall be reasoned and notified to the person in question. (3) The suspension may be lifted only if it is noticed that there is a cessation of the cause that led to the suspension. (4) Any suspension not lifted after one year automatically leads to the withdrawal of approval.

2.9 Terms and Conditions for the Approval of Natural Persons or Legal Entities in Inspections, Controls and Audits of Establishments Classified as Dangerous, Unhealthy or Obnoxious (1999)

Adopted in Yaounde, on the 9 November 1999,² this Decree lays down the conditions for the approval of natural persons or legal entities for inspections, controls and audits of establishments classified as dangerous, unhealthy or obnoxious.³

For the purposes of this Decree, the terms inspections, controls and audits shall be understood to mean all operations in a dangerous, unhealthy or obnoxious establishment within the framework of administrative and technical supervision, aimed at preventing either danger to health, safety, public hygiene, agriculture, nature and the environment in general, or inconveniences for the comfort of the neighbourhood.⁴

Article 3: Inspection, control and audit of establishments classified as dangerous, unhealthy or obnoxious shall be a prerogative of the administration in charge of classified establishments. Article 8: Approved persons, administrators and technical staff of approved companies, called to carry out inspections and controls of establishments classified as dangerous, unhealthy or obnoxious, shall be bound by professional secrecy. In this respect, they shall be prohibited from having any interest in an establishment classified as dangerous, unhealthy or obnoxious.⁵

Article 11: provides for the Inspection, control and audit of establishments classified as dangerous, unhealthy or obnoxious by the approved persons must be the subject of a report initialled by the territorially competent person in charge of classified establishments, to be addressed to the Minister in charge of classified establishments.

¹ Decree No. 99/820/Pm Of 9 November 1999 To Lay Down Conditions For Approval Of Physical Persons Or Legal Entities Operating Pollution Control Laboratories.

² Decree No. 99/821 Of 9 November 1999 To Lay Down Terms And Conditions For The Approval Of Natural Persons Or Legal Entities In Inspections, Controls And Audits Of Establishments Classified As Dangerous, Unhealthy Or Obnoxious.

³ Article 1 of Decree No. 99/821 Of 9 November 1999 To Lay Down Terms And Conditions For The Approval Of Natural Persons Or Legal Entities In Inspections, Controls And Audits Of Establishments Classified As Dangerous, Unhealthy Or Obnoxious.

⁴ Article 2 of Decree No. 99/821 Of 9 November 1999 To Lay Down Terms And Conditions For The Approval Of Natural Persons Or Legal Entities In Inspections, Controls And Audits Of Establishments Classified As Dangerous, Unhealthy Or Obnoxious.

⁵ Article 3 OBLIGATIONS OF APPROVED PERSONS.

Article 15: (1) In case of non-compliance with the provisions of this Decree, the Minister in charge of classified establishments may: – suspend the approval for a period not exceeding one year in one of the following cases: – violation of any of the provisions of Articles 8 to 12, 14 and 16 of this Decree and its implementation instruments; non-payment into the State Treasury of inspection and control costs; – publication of erroneous inspection and control reports; forgery and faking in the control of classified establishments. Definitive withdrawal of the approval in case of cessation of activities, bankruptcy, liquidation and in general, in case of repeated violation of the provisions of this Decree and of its implementation instruments.¹

2.10 National Advisory Commission for Environment and Sustainable Development

This decree was adopted in 1999;² it amends and supplements certain provisions of Decree No. 94/259 / CAB / PM of 31 May 1994, to set up a National Consultative Commission for Environment and Sustainable Development.

Article 3: (1) (new) Chaired by the Prime Minister or delegated by the Prime Minister, or by the Minister in charge of environment and forestry, the National Commission shall include the following members: A representative of the Services of the Prime Minister, A representative of each of the Ministries concerned, as the case may be: environment and forestry, territorial administration, agriculture, industrial and commercial development, animal husbandry, fisheries and animal industry, defence, national education, higher education, youth and sports, plan and regional development, the economy and finance, mines, water resources and energy, scientific and technical research, external relations, tourism, public works, transports, town planning and housing, public health, women affairs, social affairs, urban affairs; two parliamentarians of the National Assembly; 1 senator; 1 representative of the Chamber of Commerce, Industry, and Mines of Cameroon; 1 representative of the Chamber of Agriculture, Livestock, and Forestry; 3 (three) members of religious denominations, each representing the Catholic Church, Protestant churches and Islam; 3 (three) representatives of non-governmental organizations concerned with environment and sustainable development; representatives of donors concerned with environmental and sustainable development issues; representatives of European Union Ambassadors; The rest, without change.

2.11 The Organization and Functioning of the Inter-Ministerial Committee on the Environment

Adopted in Yaoundé on 3rd September 2001,³ this decree relates to the organization and functioning of the Inter-ministerial Committee on the Environment herein after known as “The Committee”. The Committee shall assist Government in its duties to draw up, coordinate, execute and control national policies on the environment and sustainable development.⁴

Article 4: (1) Members of the Committee shall be appointed by their respective ministries. (2) The composition of the Committee shall be determined by order of the Minister in charge of Environment. Article 5 states that the Committee shall be convened, when need be, and at least once each quarter by the Chairperson. Article 12: The Committee’s recurrent expenses shall be borne by the budget of the Ministry of Environment and Forestry, and resources of the National Environment and Sustainable Development Fund.

3. Non-Legal Measures of Solid Waste Management in the Towns of Limbe and Buea

The effective management of solid waste by municipalities in Cameroon is done through what is commonly referred to as the Functional Elements of Municipal Solid Waste Management which include; activities associated with the management of MSW from the point of generation to final disposal and which can be grouped into the six functional elements.⁵

as follows;

(a) Waste collection and transportation.

(b) Resource recovery through sorting and recycling i.e. recovery of materials (such as paper, glass, metals) etc. through separation.

¹ Article 15 (1) offences and sanctions.

² Decree No. 99/899/Cab/Pm of 29 December 1999 On The National Advisory Commission For Environment And Sustainable Development.

³ Decree No. 2001/718/Pm of 3 September 2001 Relating To The Organization And Functioning Of The Inter-ministerial Committee On The Environment.

⁴ Article 2: (1).

⁵ Suchandra Mukherjee Exploring the Functional Element.s of Solid Waste Management 04 Aug, 2023 availabel online at <http://enterclimate.com> accessed on March 1, 2025.

(c) Resource recovery through waste processing i.e. recovery of materials (such as compost) or recovery of energy through biological, thermal or other processes.

(d) Waste transformation (without recovery of resources) i.e. reduction of volume, toxicity or other physical/chemical properties of waste to make it suitable for final disposal.

(e) Disposal on land i.e., environmentally safe and sustainable disposal in landfills.

3.1 Waste Generation

Waste generation encompasses activities by which materials are identified as no longer being of value (in their present form) and are either thrown away or gathered together for disposal. Waste generation is, at present, an activity that is not very controllable. In the future, however, more control is likely to be exercised over the generation of wastes. Reduction of waste at source, although not controlled by solid waste managers, is now included in system evaluations as a method of limiting the quantity of waste generated.¹

3.2 Waste Handling, Sorting, Storage, and Processing at the Source

The second of the six functional elements in the solid waste management system is waste handling, sorting, storage, and processing at the source. Waste handling and sorting involves the activities associated with management of wastes until they are placed in storage containers for collection. Handling also encompasses the movement of loaded containers to the point of collection. Sorting of waste components is an important step in the handling and storage of solid waste at the source. For example, the best place to separate waste materials for reuse and recycling is at the source of generation. Households are becoming more aware of the importance of separating newspaper and cardboard, bottles/glass, kitchen wastes and ferrous and non-ferrous materials.

On-site storage is of primary importance because of public health concerns and aesthetic consideration. Unsightly makeshift containers and even open ground storage, both of which are undesirable, are often seen at many residential and commercial sites. The cost of providing storage for solid wastes at the source is normally borne by the household in the case of individuals, or by the management of commercial and industrial properties. Processing at the source involves activities such as backyard waste composting.

3.3 Collection

The functional element of collection includes not only the gathering of solid wastes and recyclable materials, but also the transportation of these materials, after collection, to the location where the collection vehicle is emptied. This location may be a materials processing facility, a transfer station, or a landfill disposal site.²

3.4 Sorting, Processing and Transformation of Solid Waste

The sorting, processing and transformation of solid waste materials is the fourth of the functional elements. The recovery of sorted materials, processing of solid waste and transformation of solid waste that occurs primarily in locations away from the source of waste generation are captioned by this functional element. Sorting of commingled (mixed) wastes usually occurs at a materials recovery facility, transfer stations, combustion facilities, and disposal sites. Sorting often includes the separation of bulky items, separation of waste components by size using screens, manual separation of waste components, and separation of ferrous and non-ferrous metals. Waste processing is undertaken to recover conversion products and energy. The organic fraction of MSW can be transformed by a variety of biological and thermal processes. The most commonly used biological transformation process is aerobic composting. The most commonly used thermal transformation process is incineration. Waste transformation is undertaken to reduce the volume, weight, size or toxicity of waste without resource recovery. Transformation may be done by a variety of mechanical methods e.g., shredding, thermal, incineration without energy recovery or chemical e.g. encapsulation techniques.

3.5 Transfer and Transportation

The functional element of transfer and transportation involves two steps: (i) the transfer of wastes from the smaller collection vehicle to the larger transport equipment and (ii) the subsequent transport of the wastes, usually over long distances, to a processing or disposal site. The transfer usually takes place at a transfer station.

3.6 Disposal

The final functional element in the solid waste management system is disposal. Today the disposal of wastes by landfilling or uncontrolled dumping is the ultimate fate of all solid wastes, whether they are residential wastes

¹ Riitta Pipatti (Finland), Chhemendra Sharma (India), Masato Yamada (Japan Waste Generation, Composition And Management Data 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 5: Waste.

² Hajar Damamy Conference paper WASTE COLLECTION December 2014 Institution and department Isfahan University of Technology · Isfahan University of Technology, p. 3.

collected and transported directly to a landfill site, residual materials from Materials Recovery Facilities (MRFs), residue from the combustion of solid waste, rejects of composting, or other substances from various solid waste-processing facilities. A municipal solid waste landfill plant is an engineered facility used for disposing of solid wastes on land or within the earth's mantle without creating nuisance or hazard to public health or safety, such as breeding of rodents and insects and contamination of groundwater. According to the HYSACAM branch in Limbe, the disposal of solid waste is the main activity that the Limbe City Council undertakes in order to ensure proper solid waste management, since the Council does not yet have the facilities required to process solid waste into other useable products.¹

3.7 Street Cleaning

The sweeping of streets is such a simple and humble occupation that it rarely attracts technical interest of the managers responsible for such activities. However, many cities spend between 30 to 50 percent of their solid waste budgets on street cleaning. It is a service for which a wide variety of tools, equipment and methods, both manual and mechanical, are available, and it is one in which there is often great scope for financial saving by the introduction of more efficient methods.

This is an area in which public relations is very important. Much of the work arises directly from shortcomings in public behaviour, such as throwing litter on the streets and open spaces. In some cities, however, a high proportion of street wastes arise from deficiencies in the refuse collection service as a result of which residents dispose of domestic and shop-wastes in the streets. The cost of removing wastes which have been scattered on the streets is very much higher than the cost of collecting similar wastes which have been placed in containers such as domestic wastes bins or litter containers.

Thus, street cleaning policies should have the following objectives:

- The provision of services for the collection of wastes from source, i.e., efficient refuse collection,
- Reduction of street litter by public education and awareness,
- The use of systems which achieve high labour productivity,
- The design and use of effective tools and equipment.

These include dust blown from unpaved areas, sometimes from within the city and sometimes from a great distance, and decaying vegetation such as fallen leaves, blossoms and seeds which originate from trees and plants in the city. Natural wastes cannot be avoided, but may be controlled by such measures as the careful selection of the types of trees planted in the city.

3.8 Road Traffic Wastes

Motor vehicles deposit oil, rubber and mud. In addition, there is sometimes accidental spillage of a vehicle's load. Animals drawing vehicles deposit excrement on the road surface. At large construction sites mud is often carried out by motor vehicles and deposited on adjacent roads; in wet weather this can cause danger to other traffic by skidding. Traffic wastes are largely unavoidable but some legislative control is possible in the cases of load spillage and construction sites.

3.9 Manual Cleaning of Streets and Public Places

A Street normally comprises three distinct paved surfaces: a highway for motor traffic, and a footway on both sides for pedestrians. The footways are slightly elevated and are separated from the highway by a kerb and channel. The channel is the lowest part of the road structure and serves as a drainage channel during rainfall; at regular intervals it is provided with outlets for the surface water to empty into the main drainage system.

To effectively manage waste within the municipality, there is a mandatory clean-up exercise in Buea every first and third Wednesday of the month. On this day, every neighbourhood is required to clean up all unauthorised waste dumps in public and private bins to reduce ill-health in the environment. The main qualified staff in each authority are the supervisors, who may be health workers. The Council is responsible for creating and managing these units with fractional responsibility for waste management, or they may subcontract the responsibilities to third parties such as specialized waste management companies, such as HYSACAM. The Council plays a minimal role in solid waste management in the Limbe municipality since they have subcontracted the whole system HYSACAM is now responsible for directly collecting waste in municipal public bins and other garbage bins.

The field work carried out by the researcher in the month of July and August 2024 in Limbe where the chief of hygiene and sanitation at the Limbe City council was contacted and interviewed, the said official of the Limbe city council informed the researcher that certain measures are taken to ensure proper waste disposal and

¹ Interviews obtained from the Limbe City Council, Hygiene and Sanitation Department on the 24 August 2024.

management in the Limbe Municipality, which include; “Keep Limbe Clean” every second Wednesday of the month just like it is done in the Buea Municipality. That the daily removal of waste is done in collaboration with HYSACAM. The various councils that make up the Limbe Municipality have employed workers to sweep the streets on daily basis. Some particular areas are of prime attention, notably the Botanic Garden area and down beach in Limbe, which attract a lot of tourists from within and without the national territory. There are waste collection points from where HYSACAM vehicles collect the waste to the permanent dumping sites along the Mokunda road.

The various Limbe Municipalities Council authorities sanction unauthorised dumping using quarter heads and officials of the councils. Defaulters are asked to pay 25,000 Frs. The various councils in Limbe have sanitary agents who go round the various municipalities to ensure its cleanliness.

The interviewee informed the researcher that a Local Radio Station sensitizes the population through a radio program that is specially tailored towards the need of a clean environment. A song usually played over the said radio station carries the wordings “*no throway dirty for gutter.*”

When waste management services are well improved from the initial stage of waste collection, this will increase the quantities collected with the appropriate use of transfer stations in highly populated areas that are not accessible to vehicles to promote the re-use of large amounts of waste materials. In inaccessible areas, HYSACAM partners with NGOs and CBOs to collect and dump municipal solid waste in transfer stations. Jobless people could become a potential labour force for NGOs and CBOs by collecting domestic waste near households and transfer to the HYSACAM garbage bins. This will increase awareness of domestic waste treatment methods by the inhabitants.

4. Conclusion

The management of solid waste in Limbe and Buea remains a pressing challenge, with non-legal measures playing a crucial role in shaping local responses to the growing problem. This study has shown that while formal legal frameworks exist, non-legal strategies such as public education, community engagement, informal sector involvement, and private-public partnerships are instrumental in addressing solid waste management gaps. Initiatives led by NGOs, youth groups, and local entrepreneurs have supplemented government efforts, often proving to be more adaptable and responsive to local needs. However, the effectiveness of these non-legal measures is often hindered by limited resources, inadequate coordination, and inconsistent public participation. For long-term success, a more integrated approach is required—one that combine’s legal enforcement with strengthened non-legal initiatives, improved infrastructure, and sustained public awareness. Ultimately, fostering a culture of shared responsibility among all stakeholders will be vital in achieving cleaner, healthier urban environments in Limbe and Buea.

5. Recommendations

This paper put forward the following recommendations.

5.1 Strengthen Community-Based Waste Management Initiatives

Local authorities and stakeholders should invest in empowering community-based organizations and informal sector actors through training, funding, and resources. These grassroots groups are often more effective at mobilizing residents and implementing context-specific solutions. By formalizing their roles and integrating them into municipal waste strategies, the towns of Limbe and Buea can enhance the reach and sustainability of solid waste management efforts.

5.2 Enhance Public Awareness and Education Campaigns

Consistent and culturally relevant public education on waste segregation, recycling, and environmental health should be prioritized. Schools, religious institutions, and media outlets should be involved in reinforcing behavioral change. An informed and motivated public is more likely to participate in and support non-legal measures, leading to cleaner and more sustainable urban environments.

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