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Research Article

Journal of Financial Intermediation, Sustainable Banking and Marketing

Local Waste Management Policies in Cameroon: The Case of the Yaoundé VI City Hall

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Submitted: 02 October 2025 **Accepted:** 13 October 2025 **Published:** 20 October 2025

https://doi.org/10.63620/MKJFISBM.2025.

Citation: *Grégoire, O. A. J., & Carine, N. E. (2025). Local Waste Management Policies in Cameroon: The Case of the Yaoundé VI City Hall. J of Fin Int Sus Ban Mar, 1(1), 01-11.*

Abstract

The general objective of this work was to analyze the effects of local policies on waste sanitation. To achieve this objective, a field survey was carried out among 45 respondents living in eight (08) neighborhoods out of the 24 in total of the CAY6. The data were processed in the descriptive register using the Stata 2011 and Excel 2013 software and a hypothesis test using descriptive statistics. The variables in our study being qualitative in nature, the technique used made it possible to collect non-quantified data, which motivated our hypothetico-deductive approach. The results obtained show that (i) local waste sanitation policies do not improve population satisfaction and (ii) local sanitation policies do not facilitate knowledge of waste management.

Keywords: Local Policy, Sanitation, Waste, Decentralized Local Authorities.

Introduction

Africa is facing rampant population growth, which is creating a mismatch between the resources available to ensure better development and the need for basic social services. Sanitation is one of the social services that suffers from a lack of resources and a lack of political will. In order to boost this sector, the international community, at the World Summit on Sustainable Development held in 2002 in Johannesburg, South Africa, decided to add a new target to the 7th MDG goal (Ensure environmental sustainability), namely to "halve by 2015 the proportion of people without access to basic sanitation services." Despite this stated commitment, current results are not satisfactory. In fact, in 2020, 846 million people in sub-Saharan Africa still did not have access to improved sanitation facilities (JMP, 2021 report).

(Ballet, 2008) defined sanitation as the set of actions and techniques aimed at collecting, treating and disposing of wastewater in order to preserve public health and the environment. Moreover, at the current rate, Africa would not achieve the MDGs until 2040. In accordance with the Strategic Framework for the Fight against Poverty and the Millennium Development Goals, national development programs are implemented by the States. Thus, Cameroon has developed Law No. 2019/024 of December 24, 2019 on the General Code of Communities decentralized territorial (CTD) to translate its political will which is to make sanitation a sector in its own right, which shares roles between actors and defines the actions to be taken, hence the need to implement an effective local sanitation policy (2019 law on the CTD code).

(Stein, 2003) defined local policies as the set of political decisions and actions taken at the level of a community or region aimed at meeting the needs and interests of the local population in terms of governance, public services and development. Waste management, one of the branches of applied rudology, includes the collection, transport, treatment, reuse or disposal of waste, usually those resulting from human activities. From an environmental point of view, optimized waste management firstly helps to preserve the ecosystem [1].

Generally speaking, it is well known that the city of Yaoundé

faces problems in the management of household waste. We encounter bins full to the point where people have no choice but to throw the garbage on the ground or burn it. Yaoundé is the political capital of Cameroon which covers 304km 2 including an urbanized area of 183km 2 and is home to a population estimated in 2020 at 4,100,000 inhabitants and from time to time encounters enormous waste management problems. When we walk through the city's arteries, we realize that there is garbage which at certain times obstructs the roadway. Household waste is discharged into the natural environment without adequate treatment, leading to significant microbiological and chemical pollution which alters both the quality of surface water and groundwater used for food and agriculture. To ensure sanitation for all, it is necessary to create cooperative experiences to share and initiatives to develop [2].

Beyond the roadway that is clogged, residents have great difficulty breathing due to the foul odors that emanate from it. A need for local policies on effective sanitation would help to meet the challenge related to the issues of health development. (Brown, 2002) believes that sanitation policy encompasses public policies that target waste management, environmental sanitation, and epidemic prevention, with an emphasis on urban planning, air and water quality regulation, and the promotion of environmentally responsible behavior.

In 2023, the population of the Yaoundé VI district municipality was confronted with the cholera epidemic which caused deaths in the Elig-Effa district (source: official documents from the Town Hall) and would face many other diseases such as infectious diarrhea and typhoid due to a poor sanitation system which is among other things the main cause of illness and mortality of children who face difficulties in waste sanitation. Sanitation facilities are non-existent in many households, markets, businesses, schools, hospitals and those that are encountered are very often not compliant with standards (AFNOR 2019).

Sanitation has become for about twenty years, a concern for African countries which is also the 7th objective of the MDG which advocates a sustainable environment. It is obvious that the first action to be taken with the waste of an object or material, after having put an end to its usefulness is to deposit it in a position, whether in the streets or in a house in order to be able to get rid of it really. When this position cannot be clearly identified in an environment by a general consensus or by a public authority, this waste will be deposited meticulously or visibly anywhere, from there, they will find all their autonomy to be able to assemble also anywhere to be able to form large batches, hence the problem of "illegal dumps" which are defined as any clandestine dumping of waste carried out by individuals or companies, without municipal authorization, and without prefectural authorization under the legislation on classified installations (OMD).

These dumps are not controlled, they negatively affect the health and social conditions of the population, such is the situation of the district commune of Yaoundé VI whose main streets are referenced by lots of illegal dumps observed in almost all the commune. If, in general, public sanitation policies aim to identify a set of approaches to facilitate good waste management. It is clear to see that they fail to facilitate good waste management in the city, mainly in the district commune of Yaoundé VI. This inefficiency is a problem across the board since unsanitary conditions reign in all the districts of CAY 6.

This new development approach requires sector stakeholders to completely review implemented policies in light of the challenges of sustainable environmental protection and population well-being. For (Criqui, 2018), sanitation is the poor relation of essential services: the attention and political and financial resources devoted to it are much less than for access to drinking water. Improving sanitation systems in developing cities requires urgent and radical mobilization to mitigate the growing cost of inaction in terms of public health, environmental pollution, and even urban attractiveness. Since the 1990s, an international community of expertise has been mobilizing and, gradually, the design of urban sanitation systems has been enriched [3]. Following these controversies, the question that is the subject of this paper is the following: Do local policies have an effect on waste management in decentralized local authorities?

Literature Review

According to. (Feachem, 2006) "Sanitation" refers to all actions aimed at preventing, eliminating or reducing risks to health and the environment linked to water, waste and sewage. For (Lefèvre, 2016) sanitation refers to all means of collecting, transporting and treating wastewater before its discharge into rivers or into the ground. According to (Freycinet, 1870) sanitation "the restitution to the earth of the fertilizing principles that it contains and the return to the rivers of liquids stripped of their corrupting elements" [4].

According to WHO (1949), the word "sanitation" is defined as "a set of actions aimed at improving the conditions in the physical environment of human life which adversely affect or are likely to adversely affect the physical, mental or social well-being of individuals or communities. "

According to (Orszagh, 2004), the word "sanitation" is defined as "an approach aimed at improving the overall health situation of the environment in its various components. It includes the collection and treatment of liquid waste, solid waste and excreta.

Regarding the definition of local policy, (Gibbins, 2001) defines local or territorial policies as those which cover all public policies produced by infra-state authorities, that is to say regions, cities, departments as well as other local administrative entities [5].

Regarding the types of local policies, we can talk about 06 types which vary depending on the country and the system in place. For (Naghel, 2003), waste is any residue from a process of production, transformation or use, and more generally any substance, or any product and any movable property that the owner or holder discards, plans to discard, or has an obligation to discard or eliminate. Maystre LY et al. (1994), also shows that the legal definition of waste is based on subjectivity and objectivity. According to the subjective conception, a good can only become waste if its owner has the will to get rid of it. But as long as this good has not left the property of this person or the space that he rents, this person can change his mind at any time. If the good has been deposited on the public highway or in a garbage dump, its owner may have clearly indicated his desire to abandon all

property rights over this good. In fact, what is deposited on the public highway belongs to the owner of the public highway, that is to say the municipality [6].

The WHO defines waste as something that its owner no longer wants and that has no current or perceived commercial value (Lhuilier, 1999). In the same vein, (Bertolini, 2000) defines waste as a product whose use value and exchange value change the negative view of waste. Waste, in this millennium, is increasingly valued in all societies. The economic value of waste in a simpler expression can be defined by three criteria: zero for its holder or owner. These two definitions do not give any economic value to waste.

The authors (Bozec, 1994; Defeuilley, 1996) show that waste is a source of expenditure for public authorities who want to ensure a better collection and disposal service and also for households who must pay taxes to contribute to the process of managing the waste produced. (Panafit, 2002) reiterates that the publicization of waste entails costs for the community in the financing of collection and disposal operations. Waste management is subject to financial costs regardless of the treatment or disposal techniques chosen for both individuals and public services. However, the interests focused on waste reflect the development of a new pole of economic activity. The economist (Meyronneinc, 1993) in "plea for waste" speaks of a separate economic sector. Most industrialized countries use waste as a source of energy or heat to keep warm [7].

The literature on waste in sociology is more oriented towards the relationship between humans and waste. Research is conducted on behaviors, the analysis of interactions between different actors and representations of waste according to types of societies. The collective publication "Household waste, between private and public. Sociological approaches" coordinated by Pierre M. (2002) is a very rich and varied illustration. The change in behavior, that is to say the sorting of waste in households and public services, has been studied by authors such as Maresca B. et al. (1994), Laredo P. and Barbier R. (1999) and Charvolin (1998). Selective sorting has been a major advance in waste management [8].

For (Becker, 2007) the economic theory of incentives is understood in two parts: on the one hand, on the behavior and on the other hand, on the financial rationality of an individual. In the context of sanitation policies, the economic theory of incentives proposes that decisions and behaviors related to sanitation can be influenced by financial incentives. Let us admit the introduction of a tax on wastewater or a subsidy for the installation of sanitation systems can encourage individuals to adopt more efficient sanitation practices. This approach considers that individuals react to changes in costs and benefits related to sanitation. Therefore, by adjusting these economic incentives, it is possible to steer behaviors towards more sustainable and efficient sanitation practices [9].

However, the economic theory of incentives also recognizes that individuals do not always make rational decisions and that other factors, such as social norms or institutional constraints, may influence their sanitation choices. (Shiva, 1998) who emphasized the importance of considering cultural and economic dimensions in environmental justice does not only focus on cultural dimensions but also emphasizes the active participation of individuals and communities in decisions that affect their environment. People who are directly affected by environmental problems must have the opportunity to participate in decision-making processes, express their concerns and needs, and influence environmental policies. (Bullard and Evans, 2003) approach environmental equity issues through an intersectional lens seeks to address environmental inequalities by ensuring equitable access to natural resources, promoting democratic participation in environmental decision-making, recognizing the fundamental rights of individuals and adopting the precautionary principle. It aims to create a more equitable and environmentally sustainable society [10].

For (Gomez, 2009) governance theory is an approach that emphasizes the role of institutions, decision-making processes, and coordination mechanisms in the implementation of sanitation policies. It recognizes that governance plays a crucial role in how policies are formulated, implemented, and evaluated. According to this theory, good governance is essential to ensure effective and sustainable sanitation management. This involves elements such as transparency, accountability, stakeholder participation, and democratic decision-making.

Transaction cost theory was developed by economists such as (Coase, 1937) in his classic article entitled "The Nature of the Firm" and (Williamson, 1975). They demonstrate that it is an economic approach that focuses on the costs associated with economic transactions between different parties. It emphasizes the costs that individuals or organizations must bear to establish, negotiate, and maintain contracts or agreements. According to this theory, transaction costs include not only direct monetary costs, such as legal fees or negotiation costs, but also costs related to asymmetric information, the search for trading partners, uncertainty and risk, as well as the coordination and monitoring of contracts [11].

However, this theory argues that these transaction costs can influence the choice between different forms of economic organization, such as the use of the market or hierarchy. For example, when transaction costs are high, it may be more efficient to establish a long-term relationship with a trading partner rather than constantly resorting to the market for each transaction. (Arnstein, 1969) presents a scale of participation that ranges from symbolic and manipulative participation to truly deliberative and decision-making participation. It highlights the importance of genuine citizen participation in decision-making processes to ensure true democracy and real power for communities. According to (Arnstein, 1969) participatory theory, also known as democratic participation, is a concept that individuals and groups should be actively involved in the decision-making process that concerns them. It aims to give those affected the opportunity to participate, contribute, and influence decisions that affect them, rather than simply being passive spectators. This promotes individual autonomy, commitment and responsibility and strengthens the legitimacy of the decisions taken [12].

Sustainable development theory, also known as sustainable development, is a concept that aims to meet current needs without compromising the ability of future generations to meet their own needs. It is based on three interdependent pillars: economic, en-

vironmental, and social. First, on an economic level, sustainable development theory encourages practices that promote economic growth while minimizing negative impacts on the environment and natural resources. This can include the efficient use of resources, promoting technological innovation, and creating sustainable jobs. Second, on an environmental level, sustainable development theory aims to preserve and restore natural ecosystems, reduce pollution and greenhouse gas emissions, and promote the use of renewable energy [13].

The legal framework for waste management in Cameroon is characterized by four types of texts: laws, decrees, circulars, and orders. Fragments of legal texts related to household waste in Cameroon are contained in the following laws and decrees.

- Law No. 74/23 of December 5, 1974 on the organization of municipalities
It gives town halls the responsibility for removing household waste and implementing all hygiene and public health measures. Article 95 provides that the municipal council may establish "direct municipal taxes" such as the Household Waste Removal Tax (TEOM).

- Law No. 87/015 of July 15, 1987 establishing urban municipalities
It grants Urban Communities powers in matters of hygiene and sanitation and District Municipalities the powers for the collection, removal and treatment of household waste.

-Law No. 96/12 of 5 August 1996 establishing a framework law on environmental management
This is the only legal text that provides a fairly clear definition of "waste." Inspired by the Rio Declaration and Agenda 21, this law is built on several fundamental principles that have opened up discussions on programs aimed at protecting and to conserve the environment, to promote sustainable development and the rational and ecologically sustainable management of waste. The framework law on the environment contains 99 articles. However, only one article refers to household waste. This is Article 46, which sets out the responsibilities of the CTDs in the management of household waste: "Decentralized Territorial Authorities shall ensure the disposal of waste produced by households, possibly in conjunction with the competent State services, in accordance with the regulations in force" [14].

-Law No. 2004/18 of July 22, 2004 establishing the rules applicable to municipalities
This law, in its Article 16, states that the District Municipalities are responsible for the collection of household waste at the local level. The same law, in its Article 110, also transfers the power for the collection, removal, and treatment of household waste to the Urban Community.

- Law 2009/019 of December 5, 2009 on local taxation
In Article 57 of the said law, paragraph 1, a local development tax (TDL) is established. This municipal tax is levied against basic services and benefits provided to the population. These include public lighting, household waste collection, electrification, water supply, etc. Compared to Law No. 74/23 of December 5, 1974 on the organization of municipalities and implementing decrees No. 80/17 of January 15, 1980 and No. 77/220 of July 1, 1977 setting the maximum rates of direct municipal taxes.

-Decree No. 2012/2809 /PM of 26/09/2012
This decree signed by the Prime Minister sets out the conditions for sorting, collection, storage, transport, recovery, recycling, treatment and final disposal of waste in Cameroon. This legal text highlights the role of decentralized local authorities. It is therefore specified that decentralized local authorities, in conjunction with the relevant government departments, develop a municipal or inter-municipal household waste management plan that defines the sorting, pre-collection, collection, transport, landfill, recovery and final disposal operations. The recovery concept promoted in the National Waste Management Strategy in Cameroon is defined in this law as any operation involving the recovery, reuse, recycling, use of waste as an energy source or any other action aimed at obtaining raw materials or reusable products from waste recovery, in order to reduce or eliminate the negative impact of this waste on the environment [15].

-Decree No. 001-MINEPDED of October 15, 2012
It covers the conditions for obtaining an environmental permit for waste management. According to Article 1 of this decree, the environmental permit for waste management is a document that authorizes any natural or legal person to carry out the activities of sorting, collection, transport, storage, recovery, recycling, treatment and/or final disposal of waste. The areas of activity where obtaining an environmental permit is required are: waste electrical and electronic equipment (WEEE); the manufacture, import and marketing of non-biodegradable packaging; non-hazardous waste and liquid household waste; toxic and/or hazardous waste, medical, pharmaceutical and liquid medical waste. This legal tool is primarily aimed at eliminating the informal sector from most waste sectors [16].

-Joint Order No. 005/MINEPDED/MINCOMMERCE of October 24, 2012
This decree sets out the specific conditions for the management of electrical and electronic equipment as well as the disposal of waste from this equipment (WEEE or WEEE).

The adoption of this text by MINEPDEP and MINCOMMERCE is the beginning of a solution to the sustainable management of WEEE, which pollutes Cameroonian cities. But above all, this decree opens up possibilities for the emergence of WEEE recovery/transformation sectors. This approach is beginning to produce results with the establishment of the first Recycling and Reuse Center for Waste Electronic and Electrical Equipment in Yaoundé.

- Joint Order No. 004/MINEPDED/MINCOMMERCE of October 24, 2012
The regulatory text governs the manufacturing, import, and marketing of non-biodegradable packaging. This framework aims to combat the long-term proliferation of plastic waste, which has become very harmful in Cameroonian cities. The expected changes are: limiting the production of non-biodegradable plastics; making any manufacturer or importer of non-biodegradable packaging responsible for implementing a waste management plan; and promoting reuse, recycling, and any other form of recovery of non-biodegradable packaging [17].

Methodology

Research Method

To collect our data, different methods were used, including interviews, documentary research, field observation, and surveys. The method used is qualitative given the nature of our qualitative variables. The approach is hypothetico-deductive to test the hypotheses formulated about the effects of local policies on waste sanitation in the CTD. Data were collected from various works available in libraries and on the internet. This documentary research focused on books, general articles, dissertations and theses addressing the issue of the effects of local policies on waste sanitation in CY6. Field visits provided a general overview of the unsanitary state of our study environment, and allowed us to observe the living environment of the population in order to immerse ourselves in the realities of daily life in the Yaoundé VI district municipality. The surveys and interviews conducted allowed for in-depth research and provided answers to certain questions related to household waste management. The surveys were conducted from August 7, 2023 to September 7, 2023, and were divided into two types. The interviews were conducted in the communal area with the heads of the hygiene service [18]. These interviews allowed us to observe that the same area was at risk of having a repeat of the cholera epidemic linked to the unsanitary conditions in the Yaoundé VI Arrondissement commune, but the incident linked to the disaster that affected CAY 6 did not allow us to have the relevant documents. The questionnaire survey allowed us to collect information from the population. To do this, we used a questionnaire sent to the residents of the municipal area. This questionnaire focused on the level of efficiency and satisfaction of the population, then on the level of acceptance of the cost of the service and the importance of a hygiene tax and finally on the knowledge of waste management. The questionnaire survey targeted residents of several neighborhoods of CAY6 without distinction of gender, because everyone who lives there is a victim of unsanitary conditions. The choice of neighborhoods and that of people was random [19].

Very often used in the study of economic phenomena, the realization of this field survey consists of questioning the target (the inhabitants of CY6) by means of a questionnaire. After choosing the sample of people to be questioned, the definition of the type of question to ask (closed questions and open questions) to have more details in certain answers, a structuring of the questionnaire followed by the determination of the place of conduct of the survey (in the markets, the schools, in the neighborhoods, the town hall itself etc.) was done beforehand.

The sections consist mainly of closed questions with binary choice (yes/no/fair/unfair) and/or multiple answers, or with a progressive response scale.

- The first section of the questionnaire includes information on: respondent profile, level of service efficiency and population satisfaction, level of acceptance of the cost of the service and importance of the hygiene and sanitation tax. And finally, knowledge on waste management and the contribution of the hygiene and sanitation tax [20].
- The second part of the questionnaire, entitled respondent profile, provides the information information on the person in the commune of Yaoundé VI: sex; age; educational level; status, residential area.
- The third section of the questionnaire, entitled Level of service efficiency and population satisfaction, aims to gain knowledge of the type of service used, the organization of waste disposal, the presence of a garbage dump, and the frequency of garbage collection. Using a scale (1 to 4), the aim is to measure the level of satisfaction with the Town Hall's public service and, finally, the assessment made by a municipal agent of the operations to combat insalubrity, and it is up to the respondent to tick the answer that seems correct to him.
- The fourth section of the questionnaire is entitled: The level of acceptance of the cost of the service and the importance of the hygiene and sanitation tax. In this section, it will be an opportunity for us to have the respondent's answers in order to know the cost they are willing to pay, to know if they share the idea that we should implement a hygiene tax and finally make the entire population pay for the removal of garbage in order to clean up the district.
- The fifth part of the questionnaire is entitled: Knowledge of waste management and the financial contribution of the hygiene and sanitation tax. In this last section of our questionnaire, we will identify people who have knowledge of waste management, whether waste sorting is done before disposal, whether civics and waste management training funded by the Town Hall through the media and seminars could help them better manage waste and reduce unsanitary conditions in the municipality in order to know whether the decisions taken by local authorities have positive effects on the environment of the constituency [21].

The survey is conducted in Yaoundé, Cameroon, among the population of CAY6. This survey covers several aspects of sanitation policies. Because, having a larger sample helps to better analyze the effects of local policies in the CTD, the goal being to serve as a survey for carrying out our estimate. This specificity will be reflected in the questionnaire which will be heavier and also beneficial for other studies. It aims to describe the procedure used for data analysis in the context of this study on the analysis of taxpayer behavior. It specifically allows for a statistical analysis of the survey questionnaires, that is to say, the number of responses collected, namely: defining the size of the population sample is an essential step before building its questionnaire survey; creating a database using Excel software to facilitate processing. It is necessary to ensure that the response rate is sufficient to obtain data that reflects the opinion of all targeted respondents: apply the methodology of statistical analysis; ensure the quality of the data obtained [22].

Results and Discussions

This study, which focuses on the effects of local waste management policies, involved the interview of forty-five (45) respondents. Regarding their profile (Table 2), these people are composed of 28 men and 17 women.

Table 2 : Respondent profile

Respondent profile	Effective	Frequency (in %)
Men	28	61.7%

Women	17	38.7%
Total	45	100

Source: Author based on field survey data

It is noted that men (61.7%) are more represented than women (38.7%). This information demonstrates that men are more willing to respond to waste sanitation issues (Figure 1).

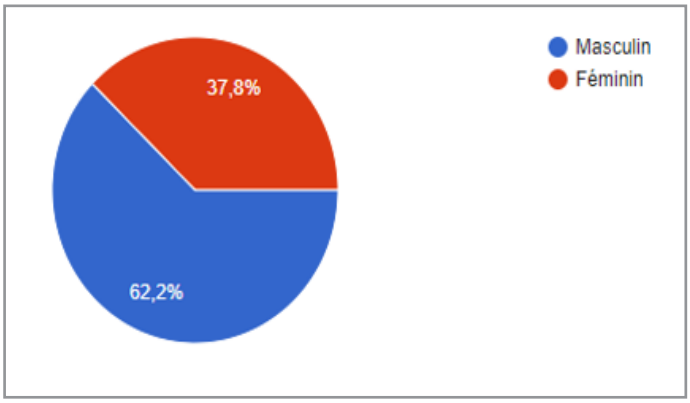

Figure 1: Distribution of respondents by gender

Source: Author based on field survey data

The majority of respondents belong mainly to the age group [13 years; 45 years] (Table 3), i.e. 11.1% from 13 to 18 years, 48.9% from 19 to 30 years and 40% from 31 to 45 years (Figure 2). This may justify the adult nature of the study to be interested in the issue of local waste sanitation policy.

Table 3: Distribution of respondents by age group

Age group	Response frequency
[13; 18]	11.1
[19; 30]	48.9%
[31; 45]	40%
[46 and over]	0%
Grand total	100%

Source : Author based on field survey data

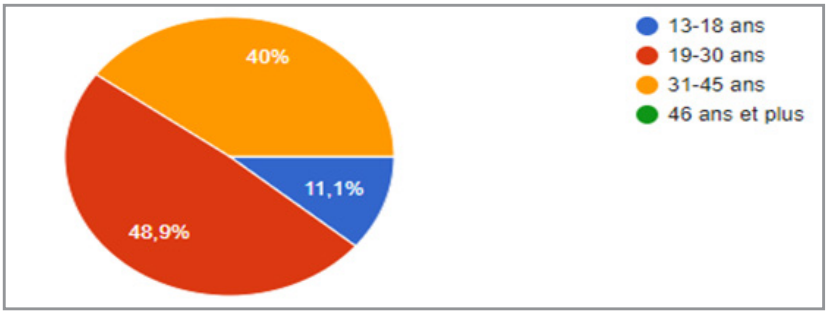

Figure 2: Distribution of respondents by age

Source: Author based on field survey data

It is noted that there are 09 respondents who have completed primary education and 36 higher education (Table 4). That is 80% of the respondents have completed university studies against 20% for secondary studies (Figure 3).

Table 4: Distribution of respondents by age group

Level of education	Effective	Response frequency
primary	0	0%
secondary	09	20%
superiors	36	80%
Grand total		100%

Source: Author based on field survey data

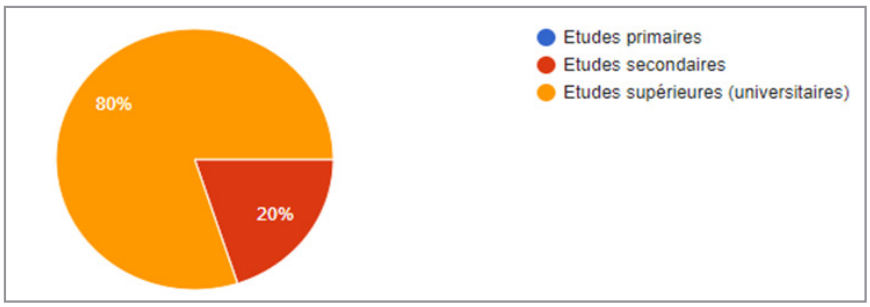

Figure 3: Distribution of respondents by level of education
Source: Author based on field survey data

The marital status of the respondents shows that there are 20.5% married, 50% single, 20% unmarried couples, 9.1% none (Figure 4)

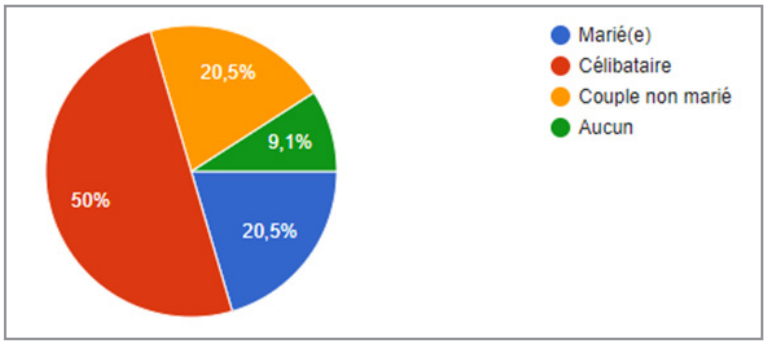

Figure 4: Distribution of respondents by marital status
Source: Author based on field survey data

The statistical unit is the population. The CAY6 contains an average of 24 neighborhoods. We observed 08 neighborhoods in our sample, which constitutes 33.33%. To make the sample more representative, the main neighborhoods in the middle, which are eight (8) in number and whose names are displayed (Figure 5), are identified and grouped to constitute the survey area. The observation demonstrates. The neighborhood Biyem-Assi is the most represented with a distribution of 14.7% of the total number of households surveyed while the least represented is Etoug-Ebé 0.16% [23].

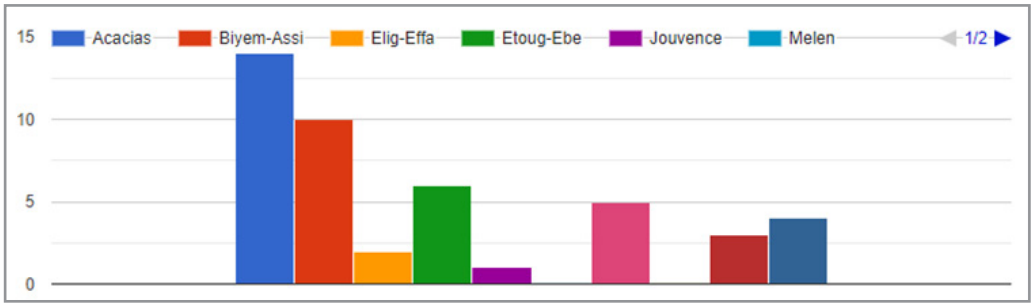

Figure 5: Distribution of respondents by neighborhood
Source: Author based on field survey data

- Use of a service for the evacuation of household waste

The field survey reveals that in the observed neighborhoods 20 people use the Town Hall service, 07 a garbage collector service and 18 by the households themselves. However, the observation that emerges is that in the different neighborhoods constituting the survey areas, many people use both the Town Hall service and their personal means to remove waste. 15.6% use the service of a garbage collector, 40% do it themselves, and 44.4% that of the Town Hall (Table 5). The strong involvement of the population certainly demonstrates that they are not satisfied with the Town Hall and that it demands more efficiency from the Town Hall service [24].

Table 5: Use of a waste disposal service

Using a waste disposal service	Effective	Frequency (in %)
Town Hall Service	20	44.4%
Private garbage collector service	7	15.6%
Yourself	18	40%
Total	45	100

Source : Author based on field survey data

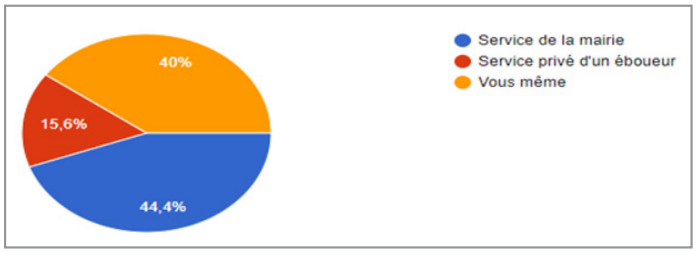

Figure 6: Use of a waste disposal service
Source : Author based on field survey data

-Organization of the Town Hall service for the collection of solid waste in the neighborhoods

In the different districts of the municipality in the survey areas, no form of collection seems evident according to the sample interviewed. 26.7% do not observe any type of collection, 62.2% say that it is done from a dump, and 11.1% say that it is done door to door.

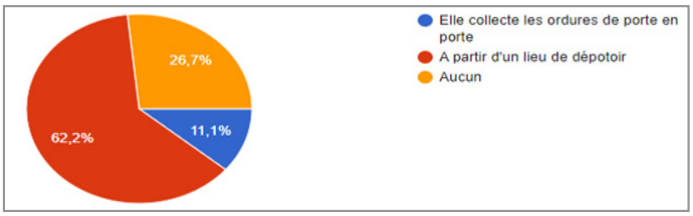

Figure 7: Organization of the waste collection service by the Town Hall
Source : Author based on field survey data

This result demonstrates that the city council service does not carry out local collection, which may make it ineffective and not satisfy the respondents.

The results show that 64.4% of respondents believe there is a dump and 35% say there is not (Figure 8). People whose answers are unsatisfactory can justify the inability of the City Hall to put a dump in all the strategic corners of certain neighborhoods.

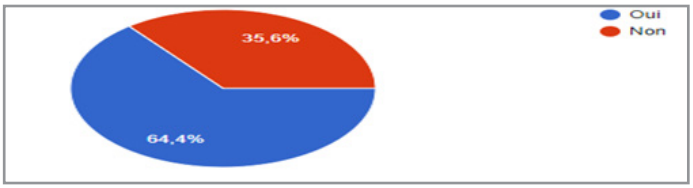

Figure 8: Organization of the waste collection service by the Town Hall
Source: Author based on field survey data

- Frequency of waste collection in the neighborhoods

The field survey shows that there are neighborhoods where collection is done every day (11.1%), every three days (28.9%), and every week (46.7%) (Figure 9). This result justifies the fact that a lot of waste accumulates when waste collection is infrequent [25].

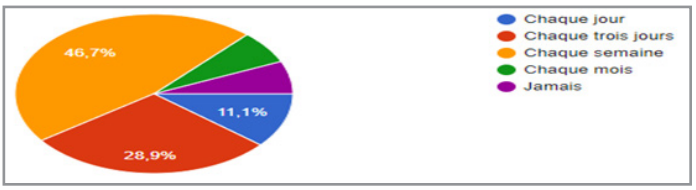

Figure 9: Organization of the waste collection service by the Town Hall
Source: Author based on field survey data

- Satisfaction with the public sanitation service

Field results show that 11.1% of people are dissatisfied, 40% are somewhat satisfied and 48.9% are not satisfied (Figure 10). This justifies the quality of the poor service provided.

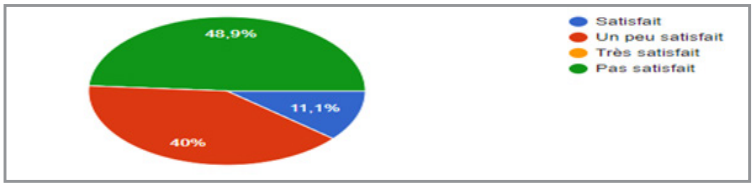

Figure 10: Organization of the waste collection service by the Town Hall
Source: Author based on field survey data

-Frequency of payment of the cost of waste removal

Only 13.3% of respondents are willing to pay a weekly amount for waste removal, 6.7% monthly, and 80% are not committed (Table 6). This result demonstrates the lack of awareness among the population regarding the importance of contributing financially to waste management. Purchasing power also appears to be limited.

Table 6: Frequency of payment of waste removal costs

Frequency of payment of waste removal costs	Effective	Frequency (in %)
Weekly	6	13.3%
Monthly	3	6.7%
None	36	80%
Total	45	100

Source : Author based on field survey data

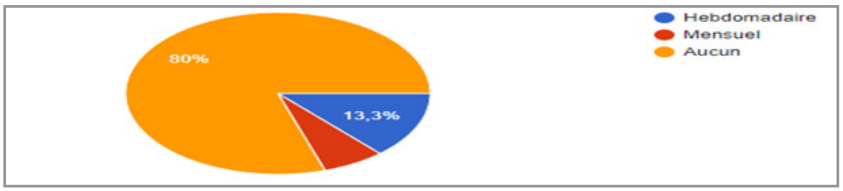

Figure 11: Frequency of payment of waste removal costs
Source: Author based on field survey data

- Principle (Polluter Pays)

It appears that people want those responsible for pollution to be disciplined. 71.1% want this principle to be applied, while 28.9% are opposed (Figure 12). This result explains why respondents do not want to spend.

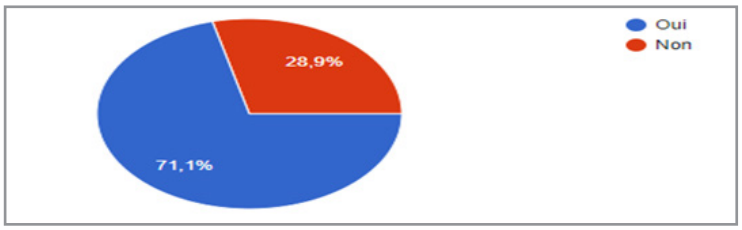

Figure 12: Principle (Polluter Pays)
Source: Author based on field survey data

- Hygiene and sanitation tax

Field results show that 60% of people share the idea that a hygiene and sanitation tax can contribute to the financing of the public sanitation service in the municipality and 40% do not (Figure 13). This can be explained by the fact that they consider it necessary that it will discipline the population [26].

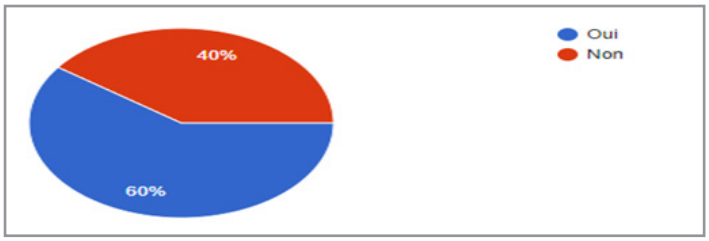

Figure 13: Hygiene and sanitation tax
Source: Author based on field survey data

- Knowledge of waste management

The study reveals that 53.3% of respondents are aware of waste management and 46.7% are not (Figure 14). The justification is that there are still disparities to be addressed by local policies.

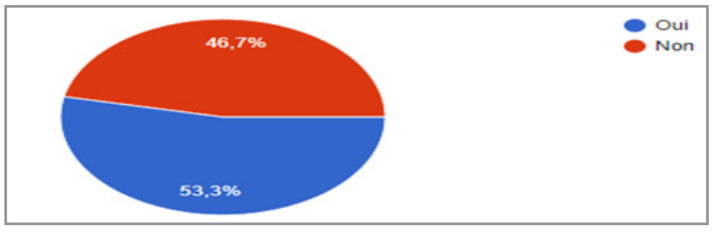

Figure 14: Knowledge of waste management
Source: Author based on field survey data

- Sorting of waste before disposal

It emerges from this that 26.7% of respondents sort waste before disposal, while 73% do not (Figure 15). This is justified by the fact that they do not have a waste management culture and the CAY6 does not train them enough on the issue.

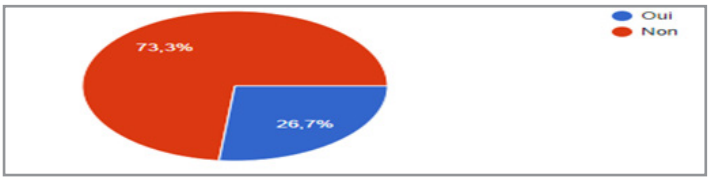

Figure 15: Sorting waste before disposal
Source: Author based on field survey data

- Collection and treatment of waste volume

The study shows that 93.3% share the idea that the volume of waste produced can be completely collected, treated and disposed of, and contribute to the purchase of adequate equipment, the training of citizens, technicians and the increase in the number of employees in the public sanitation sector. However, 6.7% do not agree (Figure 17) [27].

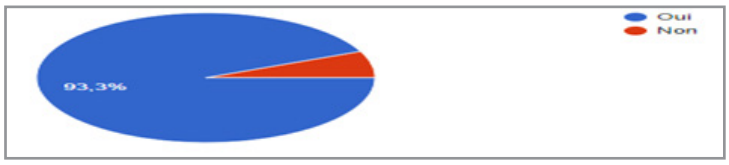

Figure 17: Collection and treatment of waste volume
Source: Author based on field survey data

- Impact of decisions by local authorities

It is noted that 68.9% believe that the decisions taken by local authorities at the level of public sanitation services have a positive impact on the environment, society and economic activities in your municipality, unlike 31.1% who think the opposite (Figure 18).

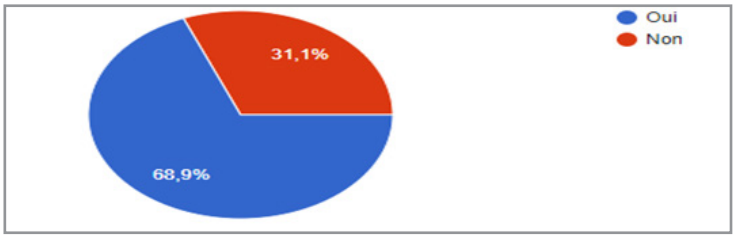

Figure 18: Impact of local authority decisions
Source: Author based on field survey data

- Price to be paid per house for the hygiene and sanitation tax

The study shows that 52.3% of respondents are willing to pay 1000 francs per house as a hygiene and sanitation tax to effectively reduce unsanitary conditions in their neighborhood, while 43.2% are in favor of 2000 francs. Only 4.5% are not willing to pay a cent. This result demonstrates that there is a willingness when the information is provided [28].

Table 7: Price to be paid per house for the hygiene and sanitation tax

Price to be paid per house for the hygiene and sanitation tax	Effective	Frequency (in %)
1000f	23	52.3%
2000f	20	43.2%
None	2	4.5%
Total	45	100

Source: Author based on field survey data

Conclusion

This paper contributes to the debates on the dynamics of local waste management policies in Africa in general and in Cameroon in particular, both at the theoretical, methodological and empirical levels. The field survey revealed that in the different neighborhoods of the municipality in the survey areas, no form of collection seems evident according to the sample interviewed. 26.7% do not observe any type of collection, 62.2% say it is done from a dump, and 11.1% say it is done door to door. This result demonstrates that the city council service does not carry out local collection, which may make it ineffective and not satisfy the respondents.

The qualitative study confirmed the idea that the field survey shows that there are neighborhoods where collection is done every day (11.1%), every three days (28.9%), and every week

(46.7%). This result justifies the fact that a lot of waste accumulates when waste collection is infrequent. Field results show that 11.1% of people are dissatisfied, 40% somewhat satisfied, and 48.9% are not satisfied. However, 13.3% of respondents are willing to pay a weekly amount for waste removal, 6.7% monthly, and 80% are not committed. This result demonstrates the population's lack of awareness about the importance of contributing financially to waste management. Purchasing power also appears limited.

Improvements are expected in local waste disposal policy for the population. The state can help local politicians to raise awareness of what is meant by good waste management by implementing awareness campaigns on the importance of good waste management. Local policies can improve people's knowledge of waste management by implementing awareness-raising and educational activities to inform people about good waste management practices, the benefits of recycling, and the consequences of pollution. The government can help local waste management policies in the area improve people's satisfaction by providing financial support for waste management projects and developing and enforcing strict waste management regulations.

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