



Optimization of Sanitation in Conakry's Markets: Challenges and Prospects

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Abstract

This article examines the optimization of sanitation and municipal solid waste management systems in the markets of Conakry, a critical issue for major African cities and undoubtedly one of the environmental challenges with significant adverse impacts on human health.

The study analyzes waste management practices in Conakry's markets, taking into account the specific types of products traded, in order to propose sustainable management strategies. The analysis is based on interviews conducted between February and June 2024 and April 2025 with municipal and market authorities, as well as vendors and customers. In addition, a structured questionnaire was designed to assess the current state of waste management in the major markets of Conakry.

The results reveal a proliferation of illegal dumping sites and the absence of a systematic waste collection system, thereby exposing market users to continuous health and environmental risks. The study also highlights the main constraints affecting waste management, as well as the various stakeholders involved. Furthermore, there is no effective policy for waste collection or for the segregation of solid and liquid waste streams. These findings underscore the urgent need to propose an optimized and integrated system to improve waste management in Conakry's markets.

Keywords: Waste; Market; Management; Optimization; Sanitation

1. Introduction

The management of urban solid waste has become one of the major challenges of sustainable urban development, particularly in cities of developing countries characterized by rapid urbanization, sustained population growth, and limited institutional capacities (UN-Habitat, 2010; Wilson, Rodic, Scheinberg, Velis, and Alabaster, 2012). Urban markets, as major hubs of economic activity and human concentration, represent significant sources of waste generation, notably organic waste, plastics, and various types of packaging. Poor management of these waste streams exacerbates environmental degradation and public health risks (Guerrero, Maas, and Hogland, 2013).

Since United Nations General Assembly Resolution 44/228, national and local governments have been called upon to strengthen public policies on sanitation and integrated waste management in line with sustainable development objectives (United Nations, 1989; United Nations, 2015). However, in many African cities, limited technical, financial, and organizational capacities hinder the effective implementation of efficient urban solid waste management systems (Parrot, Sotamenou, and Dia, 2009; Zurbrügge, Gfrerer, Ashadi, Brenner, and Küper, 2012).

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In this context, urban markets in Conakry are characterized by chronic waste accumulation, the absence of source separation, inadequate sanitation infrastructure, and irregular waste collection services. These conditions contribute to the degradation of the urban environment and to increased public health risks (Bangoura, 2017; Henry, Yongsheng, and Jun, 2006). This situation underscores the need for a comprehensive diagnostic assessment and the formulation of optimization strategies based on an integrated approach to sanitation and local waste governance.

Uncollected and improperly managed waste streams also represent a major concern, as markets lack the infrastructure and resources required to ensure sustainable waste management. Accessibility constraints constitute a key factor in the debate on market insalubrity and are frequently cited by vendors as a justification for waste accumulation in public spaces. Indeed, commercial activities, which are major sources of waste generation, produce large quantities of waste in Guinea's major markets. These volumes continue to increase and are becoming increasingly alarming in the context of rapid population growth.

The city of Conakry is not spared from this situation. The large quantities of waste generated in its markets continue to have serious consequences for public health, causing significant nuisances and exposing populations to persistent environmental and sanitary risks.

In light of these shortcomings, it is necessary to reassess the current sanitation and waste management system in Conakry's markets in order to propose more effective management alternatives. Accordingly, this study addresses the following main research question: What are the main factors contributing to the inefficiency of the waste management system in the markets of Conakry?

To address this question, the general objective of this research is to analyze the current sanitation and waste management system in Conakry's markets, through both diagnostic assessment and the formulation of concrete proposals, with the aim of improving the quality of life of vendors and consumers in terms of hygiene and environmental protection.

Aims

Specifically, this article aims to

- Describe and characterize the current solid waste sanitation system in the markets of Conakry in order to analyze its strengths and weaknesses;
- Classify markets according to the specificity of the products sold;
- Identify the different stakeholders and their roles in order to enhance the effectiveness of the waste management process.

2. Literature review

Several scientific studies emphasize that the effectiveness of solid waste management (SWM) systems depends on a combination of technical, institutional, financial, and behavioral factors (Wilson et al., 2012; Marshall and Farahbakhsh, 2013). According to Guerrero et al. (2013), the main causes of inefficiency in cities of developing countries include inadequate financing, weak strategic planning, limited coordination among stakeholders, and low levels of user participation.

UN-Habitat and the World Bank further stress that weak governance, insufficient cost recovery mechanisms, and limited institutional capacity at the municipal level constitute major structural barriers to effective and sustainable waste management in rapidly urbanizing cities (UN-Habitat, 2010; World Bank, 2018; Kaza et al., 2018). These constraints often result in low collection coverage, the persistence of open dumping, and inadequate treatment and disposal systems, with significant environmental and public health implications (World Bank, 2018; UN-Habitat, 2021).

The literature also highlights that biodegradable waste represents a dominant fraction of municipal solid waste in urban markets in low- and middle-income countries, frequently accounting for more than 50% of total waste generation. This composition creates strong opportunities for biological treatment and resource recovery options, including composting and anaerobic digestion (Zurbrugg et al., 2012; Kaza, Yao, Bhada-Tata, and Van Woerden, 2018). Such technologies are particularly suitable for market waste streams, which are rich in organic matter from food, fruits, vegetables, and fishery products.

In this regard, integrated sustainable waste management (ISWM) approaches advocate for the combination of waste reduction, source separation, appropriate collection systems, and environmentally sound treatment options, adapted to local socio-economic and institutional contexts (van de Klundert and Anschütz, 2001; Wilson et al., 2012). Empirical studies in African and Asian cities show that decentralized composting, community-based waste management, and public-private partnerships can significantly improve collection efficiency, reduce landfill dependency, and create local employment opportunities (Zurbrugg and Tilley, 2009; Kaza et al., 2018; World Bank, 2018).

Furthermore, these strategies are increasingly framed within the circular economy paradigm, which aims to close material loops by transforming waste into resources, thereby reducing environmental pressures while generating economic and social co-benefits (Ellen MacArthur Foundation, 2015; Geissdoerfer et al., 2017). In urban markets, the valorization of organic waste through composting and organic recovery contributes to soil fertility, urban and peri-urban agriculture, and greenhouse gas mitigation by reducing methane emissions from uncontrolled dumping and landfilling (UN-Habitat, 2010; Kaza et al., 2018).

Finally, behavioral and social dimensions play a critical role in the performance of waste management systems. Several studies emphasize that awareness, user engagement, and incentive-based mechanisms are essential to promote source separation, improve hygiene practices, and ensure the long-term sustainability of waste management interventions (Marshall and Farahbakhsh, 2013; Wilson et al., 2012; World Bank, 2018). Without the active participation of waste generators particularly vendors and users in urban markets—technical and institutional reforms alone are unlikely to achieve lasting improvements.

3. Material and methods

3.1. Data collection techniques

As part of the data collection process, 19 markets out of approximately sixty were georeferenced in 2024 (figure. 1). Particular attention was paid to the specificity of the main categories of products traded, in order to better understand patterns of waste generation and management. The data used to analyze the characteristics of Conakry's markets were collected through a field survey conducted among market administrators, customers, and vendors in the selected markets, as well as through direct observation of each market.

These markets were surveyed using a GPS device to delineate their perimeters and to conduct thematic analyses related to the main groups of products commercialized, waste generation, and waste management practices. Given the relatively small spatial extent of these markets, product specificity was mapped at the scale of their respective neighborhoods. This methodological choice is justified by the fact that market names generally correspond to those of their host neighborhoods, sometimes with the addition of a sector designation (e.g., Koloma Sector No. 1). This cartographic approach proved to be relevant for the present analysis, as it enabled the visualization and spatial localization of markets as well as the identification of the specific types of products traded.

3.2. Sampling

In this study, five markets were selected as the primary sites for surveys and interviews with market authorities and key stakeholders. These markets were chosen based on their strategic importance in relation to both the objectives of the study and their position within the city. The selected markets are

- Niger Market (Kaloum Municipality) ;
- Madina Market (Matam Municipality) ;
- Taouyah Market (Ratoma Municipality) ;
- Matoto and Enta Markets (Matoto Municipality).

The actors interviewed in these markets are considered representative of typical conditions observed in other markets across the city. However, surveys focusing on the main categories of products traded were conducted in a total of 20 markets (of which 19 are represented on the maps), distributed across the five municipalities of the city.

A random and representative sampling approach was used to select 165 vendors across the five markets. For other stakeholders involved in the organization, operation, or management of the markets, a non-probabilistic sampling strategy was also applied. This selection was based on the responsibilities, experience, and availability of individuals present at the time of the surveys, using a semi-structured interview guide. Accordingly, 25 customers, 5 municipal officials, 4 market administrators, and 5 neighborhoods/sector officials in Conakry were selected to participate in the

survey. This approach ensured the inclusion of key informants relevant to the study objectives. The following figure presents the distribution of respondents according to their socio-professional categories.

3.3. Data Processing

The qualitative and quantitative data collected were entered and processed using the Sphinx Plus software, which is particularly effective for both qualitative and quantitative analysis. The results of this processing were subsequently used to produce cartographic outputs of the markets according to the specific product groups associated with each market or group of markets.

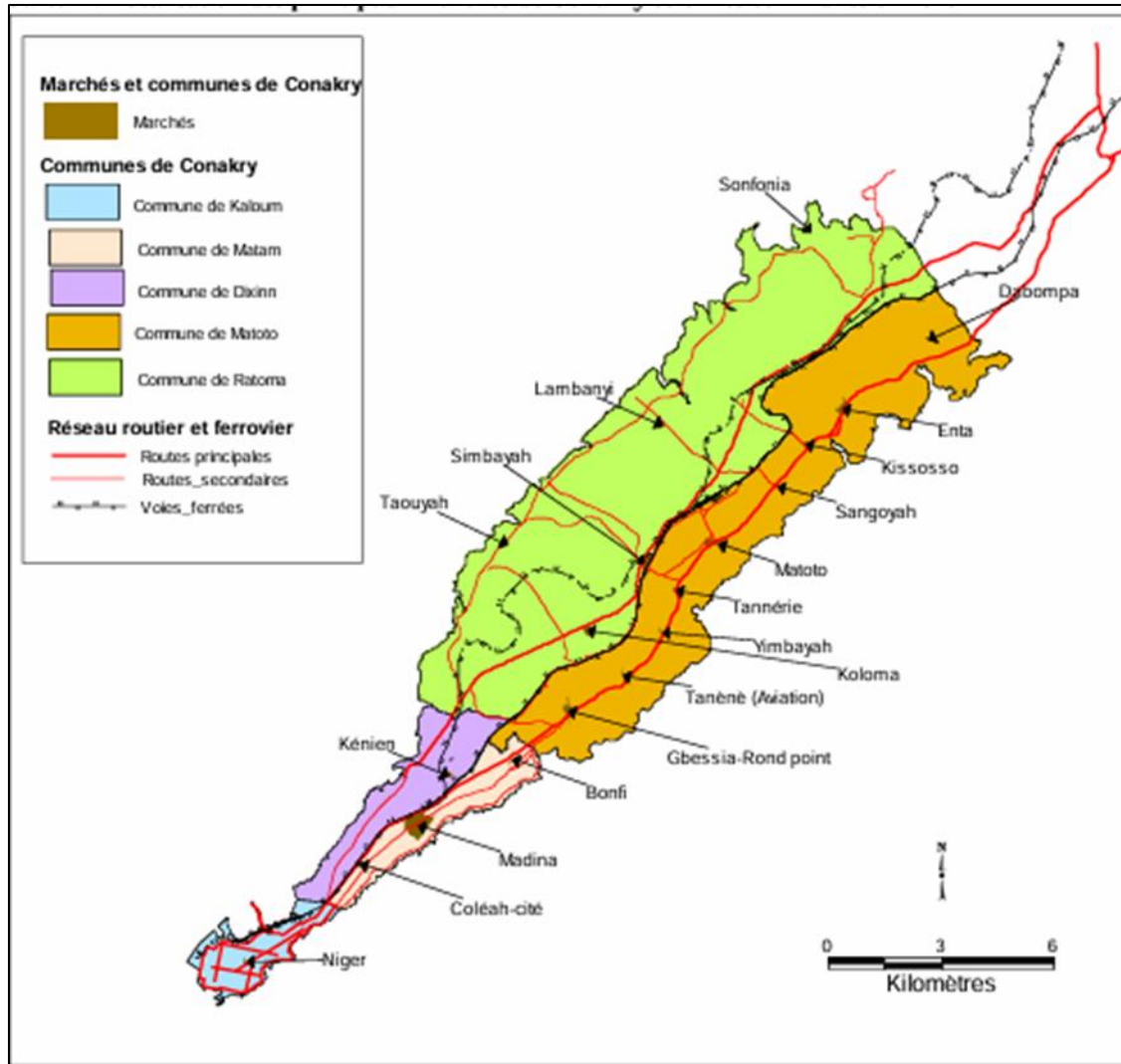


Figure 1 Location of the main markets in Conakry by municipality, 2025

4. Results

This section presents the main empirical findings of the study, highlighting key patterns in waste generation, sanitation infrastructure, and institutional arrangements in Conakry's urban markets.

4.1. Characteristics of Markets in Conakry

The markets of Conakry, like those in other regions of the country, are surrounded by a large number of informal and unplanned constructions. They are characterized by four main types of sales facilities: enclosed buildings (shops and stores), open structures (sheds), tables, and ground-level displays. Most of these facilities have been built by the vendors themselves. None of the markets is fully fenced, which exposes traders to theft, looting, and acts of vandalism, in addition to frequent fires. The majority of markets lack running water, adequate infrastructure, and proper sanitation facilities, with the exception of Madina Market, which nevertheless remains highly unsanitary due to an insufficient number of

latrines and precarious working conditions for vendors. Moreover, these sites have become shelters for homeless and vulnerable individuals, who openly defecate and urinate within market areas. Vendors report a strong sense of insecurity due to the absence of adequate surveillance, as the few guards present are often relatives or associates of the traders.

A vendor at Madina Market expressed concern about the situation as follows: “We are at the mercy of criminals because the market is neither fenced nor electrified. A simple social disturbance can lead to the looting of our shops, despite the presence of security forces. We face fires and floods almost every year, and market authorities seem inactive, or even complicit. We come here out of necessity, but our lives are in danger.” In response, a market official at Madina stated that vendors are often responsible for fires due to illegal electrical connections made to avoid paying electricity bills. Although the community mobilizes during fires, firefighters often arrive late, and the narrow alleys hinder access. An administrator at Matoto Market also acknowledged hygiene problems, noting that some vendors urinate on walls and refuse to subscribe to EDG (Electricity of Guinea), claiming that the service is inadequate. These dilapidated installations, combined with the storage of hazardous materials such as gasoline, are frequently at the origin of fires.

The layout and equipment of sales points are not uniform across markets. Some markets are covered or have a central shed, while others are entirely open-air. There are also shops scattered along urban roads, and butcher shops line the streets, with stores often forming a belt around the market that serves as a de facto enclosure. Inside the markets, there are only narrow alleys, which also function as channels for stormwater runoff. There are no designated parking areas, and trucks transporting imported goods and other merchandise stop along the roadside for unloading. Markets lack appropriate slaughtering facilities. Meat is transported from slaughterhouses to market sales points by taxi. During transport, meat is placed on plastic sheets in the trunk, sometimes covered with another piece of plastic, and sometimes exposed in open or unsecured trunks.

A common feature of all these markets is their traditional character, the exposure of goods to open air, the lack of hygiene, control, and waste management, weak enforcement of hygiene regulations, inadequate equipment, and the continuous degradation of existing infrastructure. In addition, the presence of motorcycle taxis obstructs circulation. Most tables are made of untreated wood and are in poor condition, often damp and covered with mold, although some tables are covered with metal sheets. Furthermore, the limited capacity of markets relative to population needs, the narrow unpaved and poorly drained streets, insufficient network services, and frequent flooding during the rainy season further complicate access, sales activities, and overall market operations.

Another defining characteristic is the absence of cold storage facilities and appropriate areas for waste disposal. This lack of space forces some vendors to place their waste between stalls, often along roadsides. Other traders hire informal cleaning teams (waste pickers or young workers) who remove waste and deposit it in the few available bins (which frequently overflow), at collection points, or anywhere, as long as waste is moved away from their own selling areas. The anarchic occupation of streets by mobile and informal vendors further exacerbates problems of management, organization, and maintenance. It should be noted that Madina Market is the only one equipped with multi-storey buildings. In addition, there is a high risk of pollution throughout the year: dust and smoke for vendors located along roads, and runoff water and wastewater from latrines for vendors seated directly on the ground.

The following images illustrate the different types of sales facilities observed in Conakry's markets.



Figure 2 Vendors selling directly on the ground



Figure 3 Vendors selling at Sonfonia-Gare Market in a shop



Figure 4 Vendors selling on tables at Taouyah (a) and Bonfi (b) markets

4.2. Typology of Markets According to Traded Products

There are different types of markets. Several authors have examined this issue, and this study draws on those whose work is most relevant to the present analysis. Thus, Igue (2006) classifies markets into primary collection markets, secondary aggregation or distribution markets, cross-border transit markets, and consumption markets. Fcaud and Filippi (2002), for their part, distinguish three types of markets: central markets, zone markets, and neighborhood markets. Chaléard (2002) differentiates markets according to their size, distinguishing between a main market and numerous secondary markets. Finally, Paulais (1998) distinguishes between retail, semi-wholesale, and wholesale markets.

The markets of Conakry combine these different typologies, including a few shopping centres and/or supermarkets. They are generally multifunctional markets, meaning that a wide variety of products are traded, including manufactured goods (electronic devices, clothing, fabrics, shoes, jewelry, utensils, etc.) as well as food products and staples such as root crops (cassava, sweet potato, plantain, yam), cereals (rice, maize, folio, sorghum, millet), and fruits (mango, dessert banana, orange, pineapple, avocado), among others.

The specificity of Conakry's markets is relatively weak in terms of traded products. Indeed, the main product groups commonly found in these markets are also present, to varying degrees, in other markets. Two major categories of products dominate in all surveyed markets: manufactured goods and agricultural food products, often associated with livestock and bushmeat. These product categories generally rank among the most prominent across the different municipalities.

These product groups generate large quantities of waste, whether biodegradable or non-biodegradable. In this respect, manufactured goods are classified into two sub-categories: food-related and non-food-related products. Among non-

food manufactured goods, kitchen utensils account for 36%, clothing for 29%, shoes for 21%, as well as cosmetics, household appliances, pharmaceutical products, and other types of plastic packaging (14%). Plastic bags, commonly referred to as “fore bags,” represent a significant share of household and market waste, and their management is not yet governed by an effective sanitation policy in Conakry. Although occasional cleanup campaigns are conducted, persistent insalubrity reflects the absence of a structural waste management policy in the Guinean capital in general and in markets in particular.

Food-related manufactured products mainly include condiments (71.4%), canned foods (14.3%), and beverages, both alcoholic and non-alcoholic (14.3%). Neighborhood markets such as Madina-Mosquito, Coleah-City, and others list these products among the most traded items, followed by agricultural and livestock products.

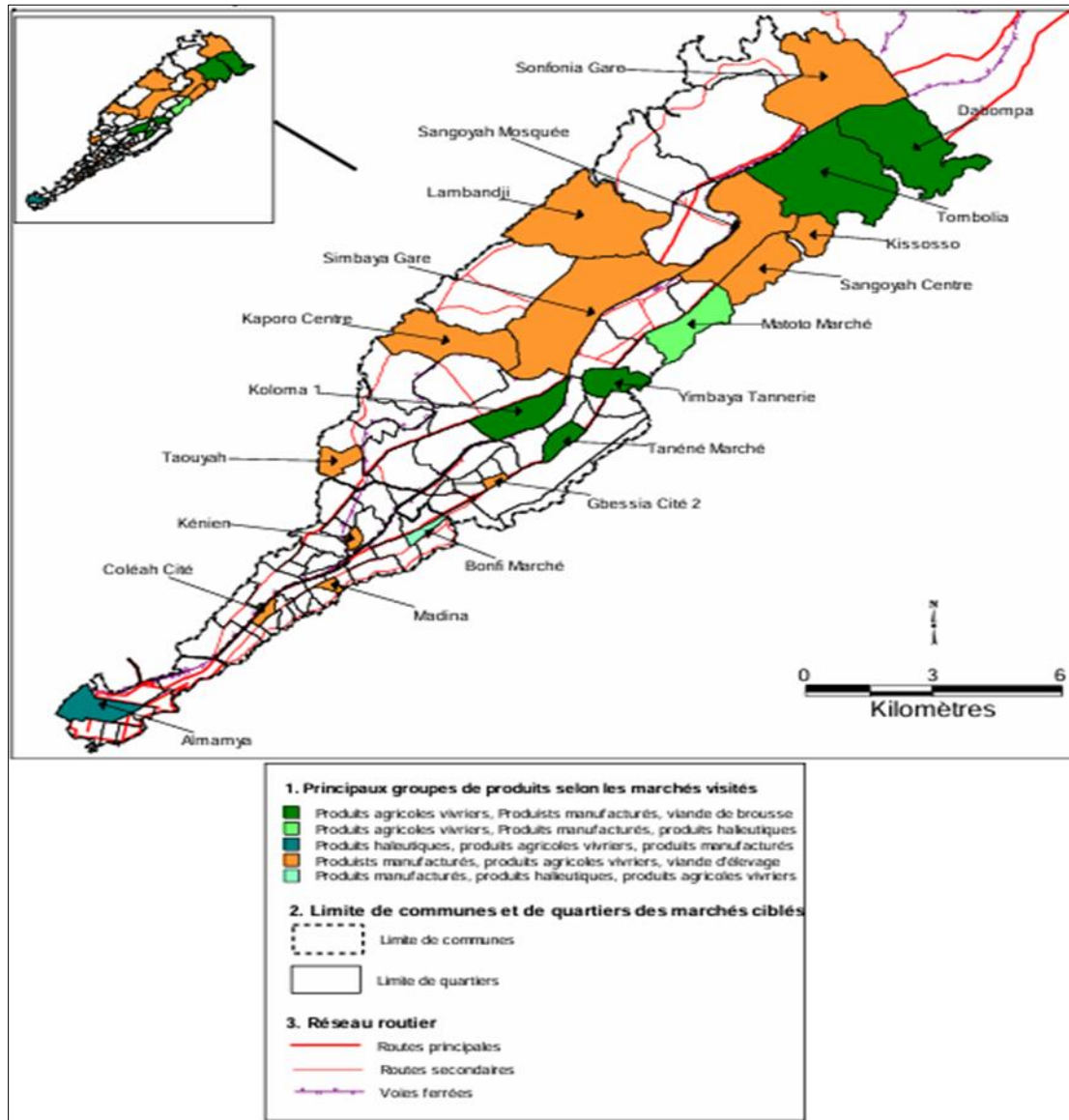


Figure 5 Main groups of products commonly traded in the surveyed markets across the five municipalities of Conakry in 2025

Agricultural, livestock, and bushmeat products are major sources of biodegradable waste and require continuous maintenance to preserve a clean environment. Cereals, tubers, and vegetables account for 50% of agricultural products, followed by bananas (21.43%), oilseeds and citrus fruits (21.43%), and artisanal soaps (7.14%).

The municipality of Matoto hosts the largest number of markets where agricultural products are traded. These include, on the one hand, food crops, manufactured goods, and bushmeat, and, on the other hand, food crops, manufactured

goods, and fishery products. In the municipality of Ratoma, manufactured goods dominate, followed by food crops and livestock products.

Niger Market, located in Kaloum, serves as a hub for fishery and manufactured products due to its proximity to the country's largest port, the presence of two landing sites (Boulbinet and Teminetaye), and the predominantly administrative character of the municipality.

This zoning highlights that solid waste management in Conakry's markets, which is largely composed of biodegradable materials, constitutes a major concern, further exacerbated by the proliferation of plastic bags. Vendors selling food products and meat generate larger quantities of waste than those dealing in manufactured goods, and these different product categories are offered by various types of traders. In this regard, three main sub-sectors can be distinguished: wholesalers, retailers, and street vendors (mobile vendors).

4.3. Stakeholders Involved in Waste Management in Markets

In Guinea, several institutions, agencies, services, and private actors at different levels of the administrative hierarchy are involved in waste management. The Ministry of Environment provides the overall institutional framework for these activities. Indeed, Ordinances No. 0002 of 5 January 1989 and No. 004 of 21 April 1990, which grant legal personality and financial autonomy to local authorities, including the city, constitute legal instruments that transfer certain responsibilities from the central government to local governments. However, due to limited resources, the responsibilities assigned to local authorities (such as the city of Conakry) are rarely fully implemented, as they are not consistently accompanied by the necessary human, material, and financial resources. As a result, their operations remain highly dependent on central government services and external support.

Previously managed by the Governorate of the City of Conakry and the Ministries in charge of Territorial Administration, Decentralization, and Trade, Conakry's markets have been managed directly by the municipalities since 19 August 2019. The municipalities are responsible not only for market layout and maintenance, but also for the collection of stall fees, rents, and local taxes. In addition to these structures, various technical services, such as the National Agency for Hygiene and Sanitation, small and medium-sized enterprises (SMEs), non-governmental organizations (NGOs), and youth volunteers, also participate in the management of market facilities, hygiene, and security. Neighborhood and sector chiefs also play a role in this management.

However, according to the results of field surveys, many of these actors often exist only on paper and show significant limitations in practice. Moreover, working relationships among them are poorly established. Despite the multiplicity of stakeholders, insalubrity and disorder continue to prevail in the markets. As a result, Conakry's markets are becoming increasingly dirty and poorly managed.

Field observations, which are consistent with vendors' perceptions, indicate that markets in Conakry are so unsanitary that it may appear as if there are no municipal services dedicated to waste management. Yet, under the law, municipalities are responsible for this service. Their role is to ensure market cleanliness by supervising the work of contracted SMEs and NGOs through terms of reference and service contracts. They are required to conduct field monitoring of the services provided under delegated management contracts in order to ensure service quality.

With regard to market administrators, their roles remain ambiguous, a finding widely shared by most respondents, who tend to shift responsibility among themselves. According to the administrator of Niger Market, his role is described as follows: "I represent the government in this market. Among other duties, I ensure the proper functioning of market operations. I resolve potential conflicts and also ensure market cleanliness." Similarly, the administrator of Madina Market stated that his mission is to "ensure the smooth functioning of the market while resolving conflicts among its occupants. He also oversees market sanitation."

Several other respondents are tasked with planning and monitoring sanitation activities in the markets of Enta, Taouyah, Niger, and Matoto. Their statements further illustrate their roles. One respondent from Enta Market explained: "I am responsible for planning and monitoring sanitation activities." A respondent from Matoto Market stated: "My mission, as a woman, is market sanitation, that is, to keep the market clean through sweeping and waste collection."

Information collected in the field indicates that, in general, these actors lack adequate resources to carry out their duties. As expressed by several respondents: "Unfortunately, we do not receive any support from the authorities for this purpose." However, field data suggest that respondents in Enta and Matoto markets benefit from some limited resources. A respondent from Enta Market stated: "The resources available to us to carry out our sanitation mission

include wheelbarrows, shovels, brooms, boots, and gloves.” A respondent from Matoto Market added: “The resources provided to me include brooms, shovels, wheelbarrows, gloves, and so on.” These statements could not be fully verified during field visits.

There is also a notable lack of sanitation committees in Conakry’s markets. Several respondents reported that such committees do not exist in their markets. Illustrative statements include: “In my opinion, there is none. However, there is a waste collection SME called *Poubelle de Conakry*.” “Due to lack of resources, this committee does not exist, because it would need adequate means to operate.” “No, there is no sanitation committee in this market.” In contrast, a respondent from Enta Market reported the existence of a sanitation committee, stating: “Yes, there is a sanitation committee in this market. Unfortunately, it lacks the necessary resources to perform its functions.”

Regarding collaboration between sanitation committees and waste collection SMEs, respondents indicated that they play a role in planning sweeping and waste collection systems in the Niger, Madina, Matoto, and Enta markets. A respondent from Niger Market explained: “Yes, in the morning, I walk around the market. As soon as I identify a problematic area, I immediately call the SME to come and collect the waste.” Similarly, a respondent from Matoto Market stated: “It is me, together with my team, who organizes the workers into groups and schedules sweeping and waste collection shifts.”

Waste collection in Conakry’s markets is carried out at varying frequencies: twice per week (1 market), twice per day (1 market), or once per day (2 markets). Regardless of collection frequency, waste from Niger Market is disposed of at Birfaga, while waste from Madina, Matoto, Enta, and other markets is transported to the Minière dumpsite. Data analysis indicates that the number of waste aggregation points within markets ranges from zero to three.

The results further show that market administrators and their representatives in Niger, Madina, Matoto, and Enta markets face several challenges, including lack of financial and technical resources, insufficient work equipment, an inadequate number of waste collection SMEs and disposal facilities, low waste collection frequency, a lack of properly developed aggregation points, and the absence of a rigorous waste collection schedule.

Overall, in addition to financial, material, and human resource constraints, there is a significant organizational deficit in terms of authority oversight and monitoring of waste collectors. Respondents’ statements further clarify these difficulties. At Niger Market, a respondent explained: “The main difficulty is related to the lack of financial and technical resources. In addition, the single SME cannot cover the entire market, especially during the rainy season, when waste accumulates rapidly.” At Madina Market, a respondent stated: “The main difficulty is the lack of financial resources. This is compounded by the absence of waste collection SMEs.” At Enta Market, difficulties were described as follows: “Our difficulties are mainly due to the lack of a properly developed dumpsite, as the only one in this market has no container. In addition, the frequency of collection by *Poubelle de Conakry* trucks is low. They come once a week or once every two weeks.” In Matoto Market, a respondent reported: “There is no specialized SME. In addition, there is a lack of aggregation points and inadequate development of existing ones, insufficient work equipment and staff. Trucks do not come according to a programmed and orderly schedule.”

In order to overcome these difficulties and achieve improved solid waste management in markets, thereby reducing associated environmental problems, respondents suggested several recommendations, which are presented in the following section.

5. Discussions

The results of this study confirm that the optimization of sanitation in urban markets cannot be addressed solely from a technical perspective, but requires institutional and organizational reforms. These include strengthening the capacities of municipalities, improving contracting and monitoring mechanisms for waste collection SMEs, and ensuring the active involvement of vendors and users (Marshall and Farahbakhsh, 2013; Wilson et al., 2012).

In line with the recommendations of the World Bank and UN-Habitat, the implementation of source separation systems, combined with local organic waste valorization pathways, could significantly reduce the volumes sent to landfills and improve the overall sustainability of the system (UN-Habitat, 2010; Kaza et al., 2018). In the case of Conakry, the gradual integration of these mechanisms appears to be a strategic pathway to strengthen the effectiveness of market waste management and to sustainably improve the quality of the urban environment.

6. Conclusion

This study, which focuses on the optimization of sanitation in the markets of Conakry, highlights the scale and complexity of the dysfunctions that currently characterize solid waste management in these strategic commercial spaces. Through a methodological approach combining field surveys, interviews, and cartographic analyses, the study provides a comprehensive diagnosis of existing practices, types of waste generated, stakeholders involved, and the institutional, technical, and financial constraints that hinder the effectiveness of the current system.

The results show that markets in Conakry are facing a proliferation of illegal dumping sites, inadequate sanitation infrastructure (latrines, waste aggregation points, containers, and drainage systems), and low waste collection frequency. These shortcomings are further aggravated by the absence of a structured waste segregation system, the predominance of biodegradable waste from food and fishery products, and the massive accumulation of plastic bags. This situation not only contributes to the degradation of the urban environment but also exposes vendors, users, and nearby residents to major public health risks, particularly those related to waterborne diseases, odor nuisances, and the proliferation of disease vectors.

The institutional analysis also reveals fragmented responsibilities and a lack of coordination among the various stakeholders (municipalities, market administrators, waste collection SMEs, technical services, NGOs, and sanitation committees). Although responsibilities have been formally transferred to local authorities, these entities have limited capacity to fully carry out their mandates. Insufficient financial, material, and human resources, combined with weak monitoring of waste collection service providers, undermine the implementation of an efficient and sustainable sanitation system. This organizational deficit emerges as one of the main structural factors explaining the persistence of unsanitary conditions in markets.

In light of these findings, the study underscores the need for a comprehensive reorganization of the sanitation system in Conakry's markets, based on an integrated and multisectoral approach. It is essential to strengthen the institutional capacities of municipalities, improve the equipment and operational capacity of waste collection SMEs, increase the frequency and regularity of waste collection, and establish well-developed and functional waste aggregation points. In addition, the spatial organization of markets, the clustering of vendors by product type, and the establishment of appropriate storage areas constitute important levers for reducing waste dispersion and facilitating effective waste management.

Furthermore, the study highlights the importance of awareness-raising and the active involvement of all stakeholders, particularly vendors and users, in the adoption of good hygiene and waste management practices. Likewise, the gradual integration of source separation and biodegradable waste valorization mechanisms (such as composting and organic recovery) represents a strategic pathway to reduce the volumes sent to dumpsites and to promote a circular economy adapted to Conakry's urban context.

Ultimately, optimizing sanitation in Conakry's markets cannot be limited to sporadic interventions. It requires a structural reform of the system, grounded in improved governance, rigorous planning, sustainable financing, and strong mobilization of local stakeholders. Such an approach is essential to sustainably improve sanitary conditions, enhance the economic attractiveness of markets, and contribute to the protection of the urban environment, within a broader perspective of sustainable development for the Guinean capital.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that there is no conflict of interest.

Statement of informed consent

Informed consent was obtained from all participants included in the study.

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