



Solid waste management in a market in Sabalibougou, Commune V of the Bamako District

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Abstract

Sabalibougou market, the largest in Commune V of Bamako, generates more than ten tonnes of waste a day according to its president, yet no public system really takes charge of it. This study describes the nature of this waste, how it is stored, collected and disposed of, and how vendors perceive the situation. We surveyed 200 vendors randomly selected from the roughly 400 working in the market, interviewed seven key informants (elected officials, market managers, the municipal sanitation service, waste collectors) and observed the market between November 2025 and February 2026. Fresh food vendors predominate (41%), and 72% of vendors report producing mainly organic waste. Before collection, waste is kept in plastic bags (29.5%), left in piles next to stalls (27%) or dumped into drains (17%). Since the economic interest groups stopped operating, collection relies on private collectors using handcarts and motorised tricycles, paid directly by vendors, usually 200 to 300 CFA francs per pick-up. According to vendors, this waste ends up mostly in illegal dumps, particularly on Badalabougou hill. Virtually no sorting takes place (98.5% never sort), no awareness campaign has reached vendors, and 97.5% consider the market dirty or very dirty. The committee to which the town hall delegated market management proves largely inactive. Yet 60% of vendors say they are willing to take part in waste recovery initiatives, and nearly half are ready to contribute financially. Abundant organic matter and this willingness among vendors open the way to integrated management, provided the town hall takes back control.

Keywords: Solid waste, urban market, informal sector, waste recovery, Bamako

Introduction

The planet is producing ever more waste. The Global Waste Management Outlook 2024 ^[15] estimates that municipal solid waste rose to 2.1 billion tonnes in 2023 and could reach 3.8 billion tonnes a year by 2050 if nothing changes (UNEP & ISWA, 2024). This growth will be strongest in the cities of low-income countries, where urban populations and consumption are rising rapidly (Hoornweg *et al.*, 2013) ^[5]. Sub-Saharan Africa is the most striking example: its waste volumes could triple by mid-century, while a large share already escapes collection altogether and ends up in open dumps (Kaza *et al.*, 2018).

The consequences are well documented. Uncollected waste blocks drains, worsens flooding and provides breeding grounds for flies, mosquitoes and rodents. Its open burning releases particulate matter and toxic compounds into the air of residential areas (Wiedinmyer *et al.*, 2014) ^[16]. People who handle it without protection are exposed to multiple health risks (Cointreau, 2006). Wilson and Velis (2015) ^[2, 17] point out that universal collection and controlled disposal remain distant goals for a large part of humanity. The causes are not only technical. Guerrero *et al.* (2013) ^[4] show that failures also stem from financing, institutional arrangements and user participation. Scheinberg *et al.* (2010) ^[13], for their part, highlight the central role played by informal actors.

Urban markets occupy a particular place in this landscape. They concentrate intense activity on a few hectares and generate large volumes of waste every day, most of it organic: damaged fruit and vegetables, peelings, and scraps of meat and fish. This fraction ferments quickly, gives off odours and attracts pests, but it is also very well suited to composting. Several studies show that biowaste recovery is one of the most promising ways for African cities to reduce the volumes sent to landfill while generating income (Couth

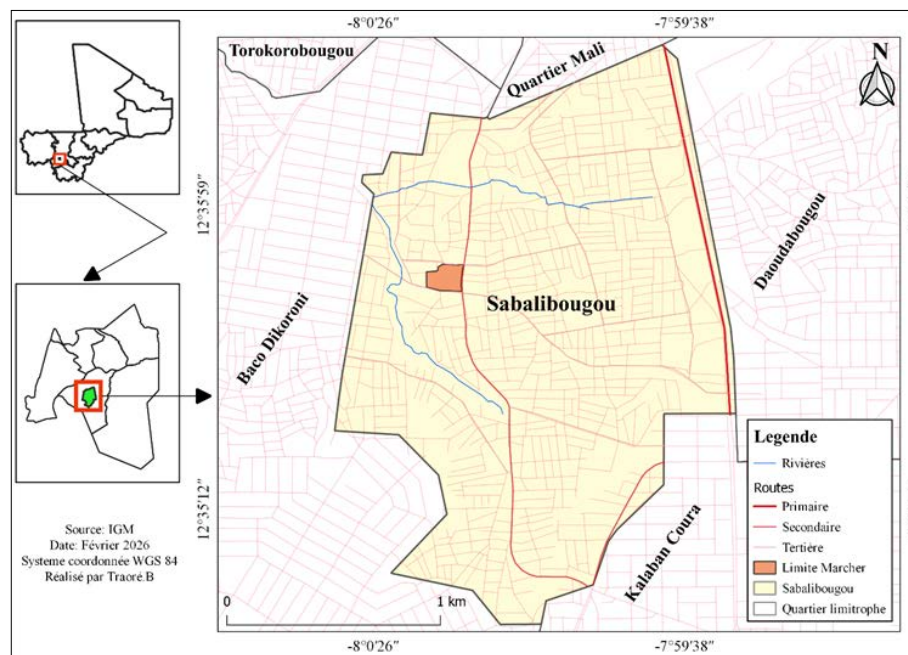
& Trois, 2012; Lohri *et al.*, 2017) ^[3, 9]. This requires, however, that waste be sorted at source and that the collection chain function. The informal sector, which often handles most of the collection and recycling in these cities, can be an asset provided it is recognised and organised (Wilson *et al.*, 2006) ^[18].

Bamako illustrates these difficulties. The city is estimated to produce some 1,470 tonnes of waste per day (Kanté, 2019) ^[6]. Management relies on a fragmented chain. Economic interest groups (GIEs) have handled pre-collection since the 1990s; municipal services and the Directorate of Urban Roads and Sanitation Services (DSUVA) are responsible for removal, even though the city has no truly functional final disposal site. Ouattara *et al.* (2021) ^[10] describe a system in which roles overlap, funding is lacking and illegal dumps are multiplying. They argue for a reorganisation of the sector and a dedicated fund. At Banankabougou market, in Commune VI, Kanté (2019) ^[6] observed rudimentary storage practices, collection by handcarts and strong dissatisfaction among traders. Yet Decree No. 01-394/P-RM of 2001 ^[11] sets out the procedures for solid waste management and assigns responsibility for it to local authorities (Republic of Mali, 2001) ^[11].

The question of disposal sites remains the weak point of Bamako's entire waste chain. In the absence of a nearby engineered final disposal site, collected waste is often dumped on the outskirts of the city. A few neighbourhoods, such as Niamakoro in Commune VI, send their waste through an official transfer station to the Noumoubougou site, beyond Tienfala (Touré, 2018) ^[14]. Most neighbourhoods do not have this option. In Commune V, GIEs have been allocated pre-collection zones, but coordination between these groups, the town hall and the services responsible for transport and storage remains weak

(Sacko, 2016) ^[12]. Markets, which produce large volumes in a small space, are particularly exposed to these failures. Yet they are rarely at the heart of municipal strategies. Sabalibougou market, established in 1966 in Commune V, is today the largest in the commune. Among other things, it sells a large share of the market-garden produce from Gouana, in the neighbouring commune of Kalaban Coro (Koné, 2024) ^[8]. Yet no recent study has focused specifically on its waste. We asked how this waste is produced, stored, collected and disposed of, and what vendors think about it. Our hypothesis is that the market's waste management suffers from technical, organisational and institutional shortcomings, and that these shortcomings affect health, the environment and the market's attractiveness. We also assume that vendors, lacking information and equipment, adopt practices that make the situation worse.

Methodology



Source: IGM, 2026

Fig 1: Location of the Sabalibougou neighbourhood and market in Commune V of the Bamako District

2. Sampling and data collection

According to the market president, the market has some 400 vendors. Applying Yamane's (1967) ^[19] formula with a 5% margin of error, we selected a sample of 200 vendors. The questionnaire was administered from 13 January to 26 February 2026. We walked through the market from the outside inwards, along both sides of the aisles, and interviewed vendors who agreed to take part. Its 27 questions covered the vendor's profile, the nature and quantity of waste produced, its storage, collection and destination, payment for the service, awareness-raising, sorting and recovery, perceived impacts and expectations. Responses were entered and processed in KoboToolbox. Between 12 December 2025 and 12 January 2026, we also conducted semi-structured interviews with seven key informants: the deputy mayor for Sabalibougou, the chair of the market committee, the head of the sanitation service of the Commune V town hall, the representative of the Urban Directorate for Public Order and Environmental Protection

1. Sabalibougou market

Commune V covers 41 km² on the right bank of the Niger River. According to the planning services, it had some 600,500 inhabitants in 2021. The Sabalibougou neighbourhood, established in 1965 six kilometres from the city centre, alone accounts for nearly 104,000 of them over 560 hectares (Figure 1). Subdivided into plots but lacking basic services, it sits on uneven lateritic ground that complicates the installation of sanitation networks. During the rainy season, rainwater mixes with wastewater and stagnates. The market stretches for about one kilometre. It combines shops, stores, sheds, tables and stalls set directly on the ground, and street vendors increasingly occupy the neighbouring streets. Its upkeep is the responsibility of the Commune V town hall, which has delegated day-to-day management to a committee chaired by an adviser to the neighbourhood chief. Each vendor pays a fee of 50 FCFA per pitch per day.

(DUBOPE), the manager of a plastics recovery company and two waste collectors. Finally, repeated visits to the market between November 2025 and February 2026 made it possible to photograph storage practices, dumps and collection equipment. Access to data was sometimes difficult: missed appointments, refusals to answer, expectations of payment among some respondents and, above all, the complete absence of waste weighing.

3. Analysis

Questionnaire results are presented as frequencies and percentages. How they should be read needs to be specified. The question on waste type asked each vendor which waste they mainly produce. The 72% figure for organic waste therefore refers to the share of vendors for whom it is the dominant waste, not the share by weight of the market's waste. Likewise, quantities are self-reported estimates, since no scales were available. Interviews were analysed thematically (Braun & Clarke, 2006) ^[1]: institutional

organisation, collection and transport, financing, difficulties and proposals.

Results

1. Respondent profile

More than two thirds of the vendors surveyed are women (68.5%). Nearly half (48.5%) have worked at the market for more than ten years, and a third for six to ten years (Table 1). Some inherited their pitch from their parents. Fresh food dominates (41%), ahead of clothing, footwear and hardware (20.5%), processed food (19%), and other products such as leaves, bark, bones and hides used in traditional medicine (18.5%) (Figure 2a).

Table 1: Sex and length of service of surveyed vendors (n = 200)

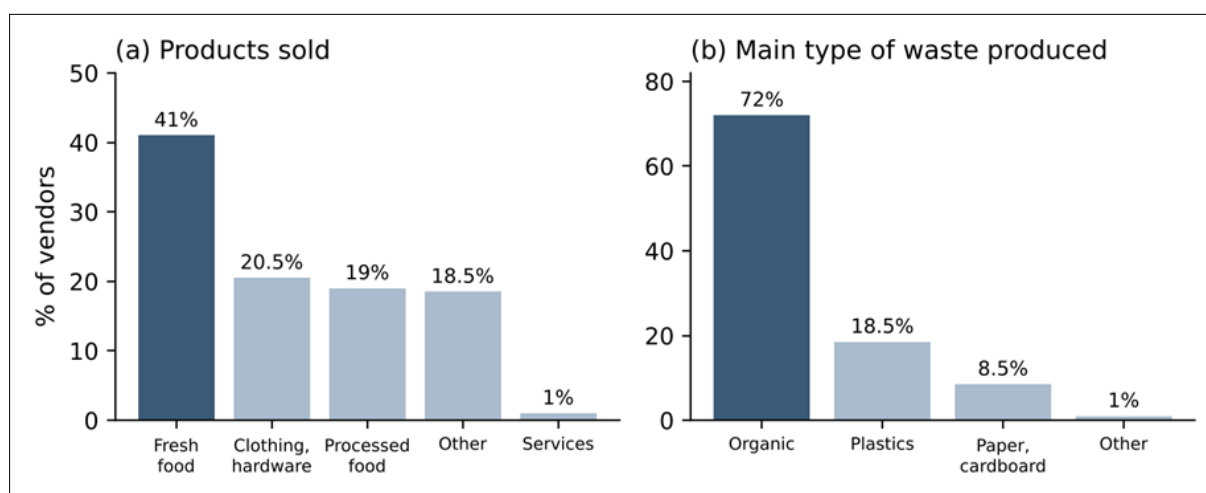
Variable	Category	Frequency	%
Sex	Women	137	68.5
	Men	63	31.5
Total		200	100
Length of service at the market	More than 10 years	97	48.5
	6 to 10 years	65	32.5
	1 to 5 years	38	19
Total		200	100

Source: field survey, 2026.

2. Types and quantities of solid waste produced

For 72% of vendors, the waste they produce is primarily organic: unsold or damaged vegetables and fruit, peelings, and scraps of meat, fish and poultry (Figure 2b). Plastics dominate for 18.5% of them, and paper and cardboard for 8.5%. Seven out of ten vendors produce waste every day (Table 2). Individually, quantities are small: 79% estimate that they produce less than one kilogram per day, and 20% between one and five kilograms. It is their number that makes up the mass. The market president estimates the total at more than ten tonnes per day, a figure that no weighing can confirm.

Observations complete this picture. Organic waste piles up at the foot of vegetable, meat and fish stalls, where it ferments rapidly in the heat (Figure 3a). Plastics, bags, packaging and bottles end up in vendors' buckets, in the aisles and, in large numbers, in the drains. Cardboard and paper pile up near shops selling manufactured goods. A more unexpected category consists of leaves, branches, bones and animal hides, linked to the sale of traditional medicine products. All this waste is mixed from the storage stage onwards, which makes any later recovery difficult.



Source: field survey, 2026.

Fig 2: Distribution of vendors by (a) products sold and (b) main type of waste produced

Table 2: Frequency and quantity of waste produced per vendor

Variable	Category	Frequency	%
Frequency of production	Every day	139	69.5
	Several times a week	50	25
	Once a week	10	5
	Less than once a week	1	0.5
Total		200	100
Estimated quantity	Less than 1 kg per day	158	79
	1 to 5 kg per day	40	20
	More than 10 kg per day	1	0.5
	Less than 5 kg per week	1	0.5
Total		200	100

Source: field survey, 2026.

3. Storage and collection

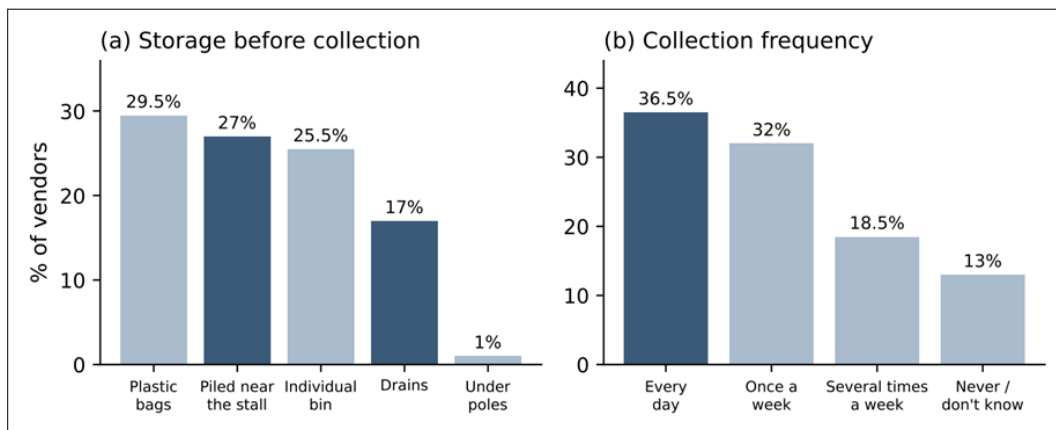
There is no shared storage equipment in the market. Each vendor manages as best they can (Figure 4a). Nearly a third (29.5%) put their waste in plastic bags and a quarter (25.5%) in an individual bin, often a bucket or drum. More than a quarter (27%) leave it in a pile at the foot of their

stall. Finally, 17% throw it directly into the drains, notably those of the ravine that runs alongside the market (Figure 3b). A few leave it under electricity poles. Collection is irregular: just over a third of vendors see a collector come by every day, a third only once a week, and 13% say that no one ever comes or that they do not know (Figure 4b).



Source: author's photographs, 2025–2026.

Fig 3: (a) organic waste at the foot of stalls; (b) waste dumped into the ravine drains; (c) waste accumulated under stalls; (d) illegal dump on Badalabougou hill



Source: field survey, 2026.

Fig 4: Distribution of vendors by (a) waste storage method and (b) collection frequency

The GIEs that once handled pre-collection have stopped operating at the market, and only one vendor still reports using them. Collection now relies on private collectors who make their way along the aisles with handcarts or motorised tricycles, known locally as katakatani (Figure 5). Nearly one vendor in five (19%) removes their own waste (Table 3). According to vendors, almost all this waste ends up in

illegal dumps: most of it on Badalabougou hill (Figure 3d), the rest in fields, and sometimes towards the Sénou airport area. The distributions obtained for these three questions (collection agent, means of transport, destination) are, moreover, identical. This suggests that vendors associate a type of collector with a means of transport and a destination, rather than knowing precisely where the waste goes.

Table 3: Collection, transport and destination of waste according to vendors (n = 200)

Variable	Category	Frequency	%
Who collects the waste?	Private collectors	161	80.5
	The vendor	38	19
	GIE	1	0.5
Total		200	100
Means of transport	Handcart	161	80.5
	Motorised tricycle	38	19
	Cart	1	0.5

Total		200	100
Waste destination	Badalabougou illegal dump	161	80.5
	Illegal dumps in fields	38	19
	Dump near Sénou airport	1	0.5
Total		200	100

Source: field survey, 2026.



Source: author's photographs, 2025.

Fig 5: Means of collecting market waste: (a) handcart; (b) motorised tricycle

4. Waste collection service

Collection is a paid service. Nearly half of vendors (47.5%) pay the collector regularly, a third (34%) occasionally, and 18.5% never pay (Table 4). Amounts are modest but frequent: 200 or 300 FCFA per pick-up for the majority, paid daily or twice a week. More than a third of vendors (36.5%) pay every day, 30% twice a week and 15% once a

week. These sums come on top of the daily pitch fee paid to the town hall. The most frequently cited problem is the lack of bins (57.5%), well ahead of irregular collection (16%) and its perceived high cost (11.5%). Nearly half of vendors (47.5%) say they are not very satisfied with the service, a third are satisfied, and 18.5% express no opinion (Figure 6a).

Table 4: Payment for the service and problems encountered

Variable	Category	Frequency	%
Payment for the service	Regularly	95	47.5
	Occasionally	68	34
	Never	37	18.5
Total		200	100
Amount per payment	200 FCFA or less	57	28.5
	300 FCFA	67	33.5
	400 to 500 FCFA	25	12.5
	1,000 FCFA or more	14	7
Total		200	100
Main problem	Lack of bins	115	57.5
	Irregular collection	32	16
	High cost of the service	23	11.5
	Poor hygiene at collection points	18	9
	Illegal dumps, damaged containers	12	6
Total		200	100

Source: field survey, 2026.

5. Solid waste management problems

Almost all vendors are unaware of waste management rules: 99% say they do not really know them or do not know them at all (Table 5). Almost none (98.5%) have taken part in an awareness campaign at the market; the three who have did so elsewhere, in their own neighbourhood. None claims to

know how to treat waste. Sorting is virtually non-existent: 98.5% never separate different types of waste. Two thirds know of no recovery initiative, and a third do not know whether any exists. Yet 60% say they are willing to take part in recovery initiatives, and 48.5% to contribute financially to a better management system.

Table 5: Knowledge, sorting and willingness to act (n = 200)

Question	Response	Frequency	%
Do you know the waste management rules?	Not at all	119	59.5
	Not really	79	39.5
	Very well	2	1
Total		200	100
Have you taken part in an awareness campaign?	No	197	98.5

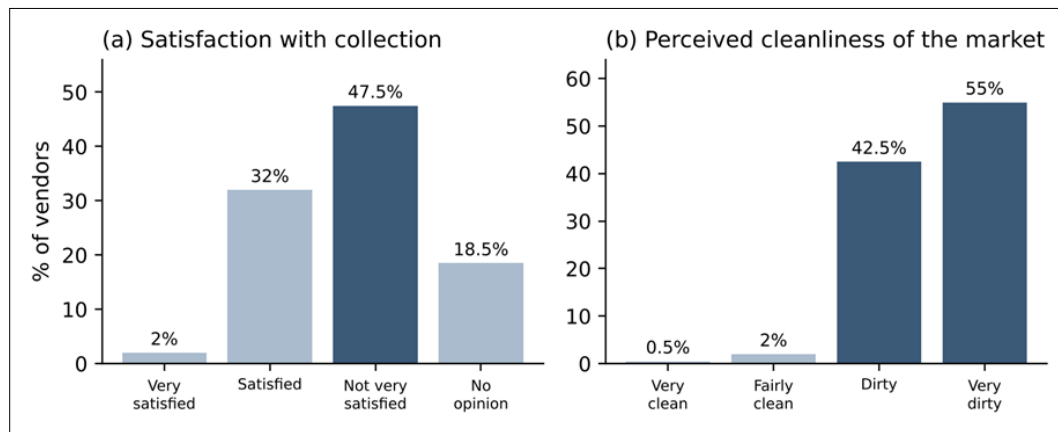
Do you separate types of waste?	Never	197	98.5
Do you know of a recovery initiative?	No	128	64
	Don't know	70	35
Total		200	100
Would you take part in recovery initiatives?	Yes	120	60
	Don't know	78	39
Total		200	100
Would you contribute financially to a better system?	Yes, without hesitation	97	48.5
	Don't know	95	47.5
	No	8	4
Total		200	100

Source: field survey, 2026.

6. Perceived impacts and expectations

Vendors' judgement of the market's cleanliness is unequivocal: 55% find it very dirty and 42.5% dirty (Figure 6b). Asked to name the main impact of this situation, they cite first the damage to the market's image (35.5%), followed by health problems (18.5%), water and soil pollution (17.5%), the proliferation of insects and rodents

(15.5%) and bad odours (13%). In the rainy season, some aisles become almost impassable because of mud and heaps of refuse. Their expectations are aimed mainly at the public authorities: 55% want the town hall to get involved, a third call for public bins, and 10% would like staff assigned to remove the waste.



Source: field survey, 2026.

Fig 6: Distribution of vendors by (a) satisfaction with collection and (b) perceived cleanliness of the market

7. The view of institutional actors

The interviews confirm the institutional vacuum. The Commune V town hall, responsible for sanitation at the market, has delegated its day-to-day management to a committee. Yet this committee has no longer coordinated collection since the GIEs stopped operating at the market. DUBOPE has only three officers for the whole commune and confines itself to awareness-raising. DSUVA intervenes occasionally to maintain the drains. The private collectors, for their part, work outside any framework: they are neither registered nor equipped, and they live off the sums paid by vendors, in precarious hygienic conditions. All actors point to the lack of infrastructure, whether bins, a transfer station or trucks. They also note the absence of a controlled landfill and the non-payment of fees by some vendors. Strained relations between the town hall and the market management further complicate the situation, to the point that no one knows the exact number of vendors.

Discussion

1. A management chain abandoned at the market

The clearest finding of the study is that no one is in charge. The town hall has delegated day-to-day management to a committee, the committee has coordinated nothing since the GIEs left, and the technical services intervene only occasionally. In this vacuum, everyone manages their waste

in their own way. Ouattara *et al.* (2021) ^[10] had already described, at the scale of Bamako, a sector in which responsibilities overlap without anyone taking charge of coordination. At Sabalibougou market, this fragmentation reaches an extreme: there is no shared bin, no transfer station, no organised collection route and no authorised disposal site. Guerrero *et al.* (2013) ^[4] identify precisely the absence of clearly assumed institutional responsibility as one of the main factors behind the failure of waste management systems in cities of the Global South.

Vendors' demand is, moreover, clear: more than half expect the town hall to get involved. Their dissatisfaction is in no way a rejection on principle. It stems from the perception of an absent public service even though they pay a pitch fee every day. Kanté (2019) ^[6] made the same observation at Banankabougou market, where nearly nine traders out of ten held the town hall responsible for the unsanitary conditions. As long as the fee collected does not translate into any visible service, it will be difficult to persuade vendors to pay more.

2. The informal sector: an indispensable but fragile link

If the market is not completely overwhelmed by its waste, it is thanks to informal collectors. Handcarts and motorised tricycles come by every day or nearly so, and vendors pay

them directly. This model has its merits: it is flexible, suited to narrow aisles and affordable for vendors on modest incomes. Kanté (2019) ^[6] observed the same widespread use of handcarts at Banankabougou. Wilson *et al.* (2006) ^[18] showed that in many cities of developing countries, the informal sector carries out most of the collection and recycling, often at lower cost to local authorities. But this link is fragile and, as things stand, it shifts the problem rather than solving it. Collectors have no authorised site at which to empty their loads. The market's waste therefore ends up on Badalabougou hill or in nearby fields, where it pollutes the soil and runoff water. The market partly cleans itself, and the city gets dirtier elsewhere. Scheinberg *et al.* (2010) ^[13] insist on this point: integrating informal actors means giving them a status, equipment and, above all, access to controlled disposal sites. Without such integration, the informal sector remains a stopgap.

3. Vendor practices that reflect a lack of means

One vendor in six throws their waste into the drains, and more than a quarter leave it in a pile at the foot of their stall. This could be seen as a lack of civic-mindedness. Our results invite a more nuanced reading. The problem most often cited by vendors is the lack of bins, and there is no shared storage facility in the market. None has ever been reached by awareness-raising on site, and almost all are unaware of the rules in force. Under these conditions, the drain becomes the nearest outlet. Ouattara *et al.* (2021) ^[10] point out that changing behaviour requires both awareness-raising and equipment that makes good practice possible. In Sabalibougou, neither is in place.

These practices have consequences that extend beyond the market. Blocked drains prevent stormwater from draining away during the rainy season. Water stagnates, aisles become muddy, and decomposing organic waste attracts flies and mosquitoes. The plastic bags used to store waste also end up in the drains, even though Malian law has banned non-biodegradable bags since 2014. The occasional burning of rubbish heaps, reported in the market, adds air pollution to a space where food is sold (Wiedinmyer *et al.*, 2014) ^[16].

The comparison with Banankabougou is revealing. There, Kanté (2019) ^[6] found that 91% of traders stored their waste in a container, whether a bag, a cardboard box or a bin, before collection. In Sabalibougou, the figure is only 55%, and nearly one in six uses the drain directly. The gap is probably not due to a difference in mindset between vendors in the two markets. Rather, it reflects the collapse of pre-collection arrangements in Sabalibougou since the GIEs left.

4. Women, the most affected

More than two thirds of vendors are women, and it is they who handle organic waste every day: peelings, damaged vegetables, fish scraps. They are also the ones who spend their days next to rubbish heaps and blocked drains. Any improvement strategy must therefore involve them directly, in the design of collection points, in the organisation of a sanitation committee and in any composting activities. Their long presence at the market, often more than ten years, makes them stable and well-informed partners, capable of sustaining a project over time.

5. An organic resource to be recovered

The market mainly produces organic waste, and this characteristic can become an asset. Couth and Trois (2012)

^[3] showed that composting is one of the least costly treatment options in Africa, and Lohri *et al.* (2017) ^[9] review several technologies suited to low-income cities, from simple composting to rearing insect larvae for animal feed. A market that generates several tonnes of relatively homogeneous organic matter every day is an ideal feedstock. The market gardeners of Gouana, who supply the market (Koné, 2024) ^[8], could indeed be its first customers. Two conditions must be met. First, waste must be sorted at source, which almost no vendor does today. Second, a composting site is needed, along with an organisation to supply it. The good news is that 60% of vendors say they are willing to take part. Their lack of awareness of existing initiatives is mainly due to a lack of information. Separate collection of the organic fraction, entrusted to the current collectors in return for additional pay, could be a realistic first step.

6. Who pays, and for what?

The financial question lies at the heart of the problem. Vendors already pay twice: a daily pitch fee to the town hall, then the private providers for collection. For a vendor who pays the collector 300 FCFA a day, the expense exceeds 8,000 FCFA a month, far more than the municipal fee. Many vendors therefore feel that they are paying out of their own pockets for a public service that the town hall should provide, which explains both their dissatisfaction and the non-payment by some of them. On the town hall's side, revenue from the market is not earmarked for its sanitation, and no one knows how much it really amounts to.

Ouattara *et al.* (2021) ^[10] proposed setting up a dedicated fund to finance the solid waste sector in Bamako. At the market level, a simpler solution would be to earmark a fixed share of the pitch fee for waste management and to set, together with vendors, a transparent collection fee paid to contracted collectors. Nearly half of vendors say they are willing to contribute more, and almost as many are undecided. Above all, they want to know what their money will be used for. A board displayed in the market, showing the revenue collected and sanitation expenditure, would probably be enough to restore some of that trust.

7. Courses of action

Several measures follow from these findings. First, the town hall should resume responsibility for the market's waste management, by redefining the committee's mandate and allocating a share of the pitch fee to sanitation. Second, the market should be equipped with shared bins and a properly built collection point, linked to regular removal to an authorised site. Third, informal collectors could be registered, provided with protective equipment and bound to the town hall by an agreement, rather than left outside the law. A fourth avenue would be to launch, with the women selling fresh produce, a pilot project for sorting and composting organic waste. Finally, a sanitation committee bringing together vendors, the market committee and the technical services could organise clean-up days and regular awareness-raising directly in the market aisles.

Limitations

The study has several limitations. The total number of vendors, used to calculate the sample, is based on an estimate by the market president, and the sample was drawn from vendors who were present and willing to participate. Waste quantities are self-reported, since no weighing was

carried out. The identical responses obtained for the collection agent, means of transport and waste destination call for verification. Directly tracking collectors to the dumping sites would confirm where the waste actually goes. Finally, a characterisation campaign based on weighing would give a more reliable picture of the composition of the market's waste.

Conclusion

Sabalibougou market produces large quantities of waste every day, mostly organic, without any organised system to handle it. Vendors store it as best they can, in bags, in piles or in the drains. Informal collectors remove it for payment to illegal dumps. The town hall, which has delegated management of the market to a largely inactive committee, remains absent in the eyes of vendors. The result is a market considered dirty or very dirty by almost all who work there, a degraded commercial image and health risks. Our hypotheses are borne out: waste management suffers from technical, organisational and institutional shortcomings. Vendors' practices, for lack of equipment and information, contribute to the degradation of the living environment.

The study also highlights a number of assets: an informal sector that is already active, vendors who have been established for a long time and are willing to get involved, and an organic resource well suited to composting. Turning these assets into a sustainable system requires the town hall to take back control, collectors to be integrated and recovery to be organised with the women vendors themselves. Further research could measure the market's actual waste production by weighing, track the waste to its final destination and assess the economic feasibility of a composting unit at commune level.

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