



Impacts of awareness raising in responsible waste management in commune V of Bamako

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Abstract

Waste management in Bamako's commune V is a growing challenge in a context of high urbanization, changing consumption patterns, and weak environmental infrastructure. The uncontrolled accumulation of household, industrial, and plastic waste has worrying health, social, and ecological consequences. Faced with this situation, raising public awareness of sustainable waste management appears to be a strategic response, both preventive and educational. The objective of this research is to analyze the Impacts of awareness-raising on responsible waste management in Bamako's Commune V. The study uses a mixed methodology combining quantitative population surveys and qualitative interviews. The results show that awareness-raising campaigns, whether led by public authorities, non-governmental organizations, or community stakeholders, aim to inform, educate, and mobilize citizens around responsible practices such as sorting, reducing waste at source, and recovering recyclable materials. However, the actual impact of these initiatives remains poorly documented, particularly in terms of sustainable behavioral changes among urban and rural populations.

This research contributes to the understanding of the problem of raising awareness of waste management in Mali in order to recommend sustainable sanitation strategies.

Keywords: Impacts, awareness, waste management, commune v of bamako

Introduction

Waste management refers to all activities, practices, and processes aimed at collecting, transporting, treating, recycling, recovering, and disposing of waste in a way that minimizes its impact on the environment, human health, and society. It also includes source reduction and awareness-raising for more responsible resource management. It is clear that strengthening the link between education and the environment is very important. Thus, the UNDP (2020) in several African countries (including Mali) found that environmental education programs integrated into schools improve the cleanliness of establishments and create a contagion effect in families. It states that the child becomes an agent of change, transmitting a message to those around them.

In Mali, the waste problem is a major challenge, particularly in large cities like Bamako, where daily production far exceeds the capacity of collection services. Much of the waste ends up in illegal dumps, polluting the environment and posing significant health risks (WHO 2023).

One of the solutions considered to deal with this situation is raising awareness among the population. In this regard, according to Faye, 2015, populations who benefited from awareness campaigns changed their practices: reduction of waste thrown in the street, sorting of waste at source and participation in community collections. He adds that awareness plays a decisive role in making residents responsible for their environment.

Speaking of waste sorting, Fofana (2021) ^[5] demonstrates that areas that have benefited from awareness-raising on sorting (such as the neighborhoods affected by the Recycling Caravan) show a sorting rate 35% higher than

neighborhoods without educational action. He adds that awareness-raising transforms the perception of waste, no longer seen as discards, but as resources.

Waste management in Commune V faces several major challenges. Rapid population growth and accelerated urbanization have led to a significant increase in the production of household solid waste. However, infrastructure and collection services remain insufficient to effectively manage this waste (PDESEC, 2020).

This research work focuses on the impacts of awareness raising in responsible waste management in commune V of Bamako.

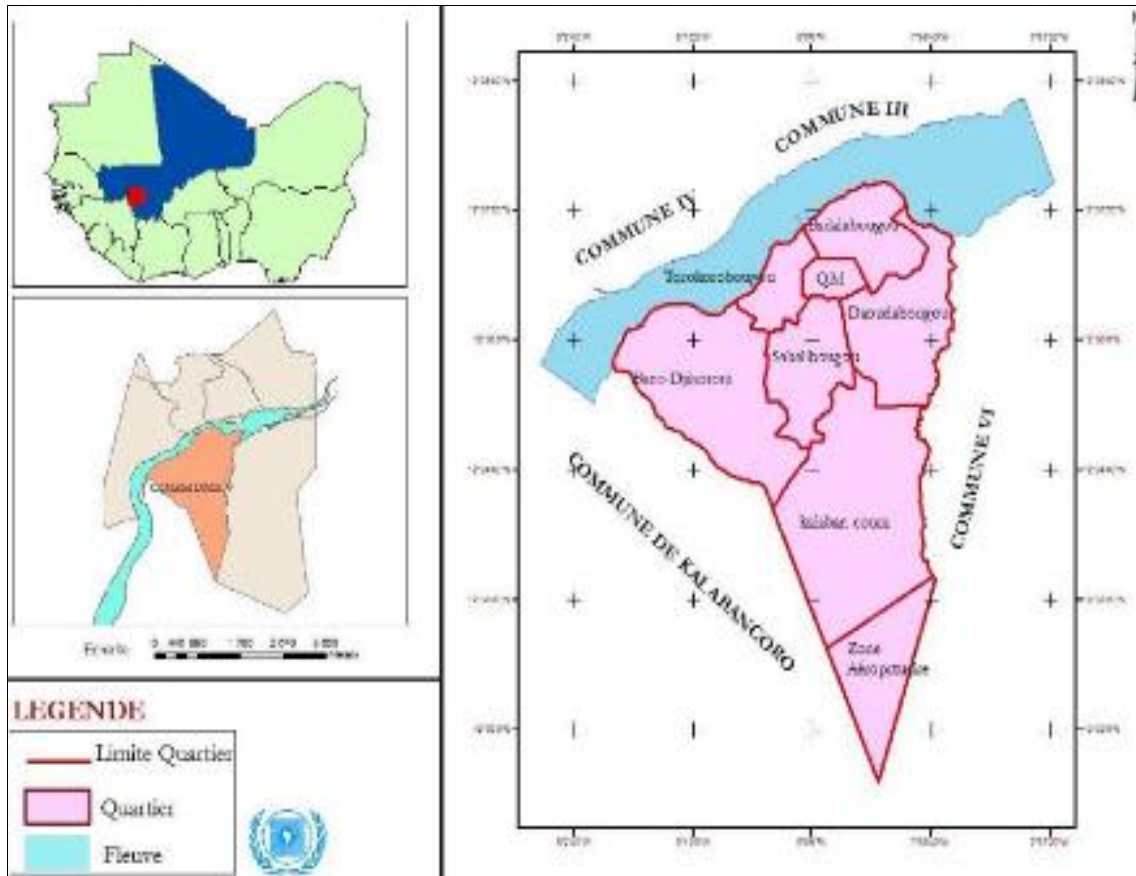
Method and materials

The research methodology is used in this chapter to better answer our research questions in order to confirm or refute our hypotheses announced in the general introduction. The choice of our study is a mixed approach, it consists of questioning and interviewing our subjects on the research questions.

1. Presentation of the Study Area

Created by Ordinance No. 78-32/CMLN of August 18, 1978, amended by Law No. 82-29/AN-RM of February 2, 1982, Commune V is located on the right bank of the Niger River in the southwest part of Bamako. It is bordered by Communes IV and VI and is crossed by several main roads that facilitate trade. Commune V is known for its cultural diversity and its numerous markets, such as the Sabalibougou market. It is also home to several schools and health centers, contributing to the well-being of its inhabitants.

Map of commune V of Bamako



Commune V is located between 12°65 and 12°55 North latitude and 8°05 and 7°95 West longitude. It has an area of 41 km², or approximately 13.28% of the total area of the District (267 km²). It is bordered to the north by the Niger River; to the south by the airport zone and the commune of Kalaban-Coro; to the east by commune VI and to the west by the Niger River.

It is made up of several districts, each headed by a district chief: Bacodjicoroni, Badalabougou, Foulabougou, Daoudabougou, Garantiguibou, Kalabancoura, Mali District, Sema District, Sabalibougou, Sema II, Torokorobougou.

2. Sampling

The survey was conducted among 20 people from commune V of Bamako. Participants were randomly selected to obtain a diversity of opinions, while maintaining a balanced distribution between men and women. This exploratory sampling lays the foundation for a field study, even if the number of respondents remains limited.

3. Collection, processing and analysis of data

3.1. Collection tools

Data were collected using a structured questionnaire, consisting mainly of closed questions (Yes/No, multiple choice). The questionnaire, administered in person, covered the following points:

- Knowledge of waste management and recycling,
- The practice (or not) of sorting waste,
- The reasons for non-sorting (for example, lack of infrastructure or lack of information),

- Evaluation of awareness campaigns in the region.

3.2. Processing and analysis

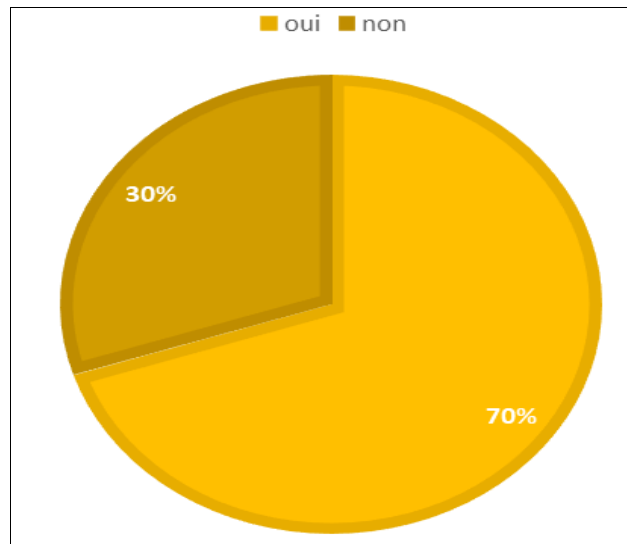
Responses were entered into Microsoft Excel. Analysis was performed in two steps

- **Data processing:** The raw data were organized in table form, allowing frequencies and percentages to be calculated (for example, the rate of awareness of waste management or the reasons for not sorting).
- **Visualization:** Graphs (pie charts for the distribution of responses and histograms for reasons for not sorting and opinions on campaigns) were created to facilitate the interpretation of the results.

These processing tools made it possible to identify clear trends and highlight the main findings of the survey.

Results

The survey results provide insight into the public's perceptions of waste management and recycling, as well as the perceived effectiveness of awareness campaigns. The following are the main trends observed from participants' responses: 3.1 Knowledge of waste management
The results show that 70% of respondents claim to know about waste management and 25% say they have no knowledge of waste management mechanisms. This indicates that the concepts of waste management are relatively well understood by the population. However, this theoretical knowledge does not translate into effective practice, as indicated by the following results:



Source: Personal surveys, 2024

Fig 1: Knowledge of waste management

2. Waste sorting practice

Despite this theoretical knowledge, it is striking to note that none of the participants practice waste sorting. This highlights a significant contradiction between the knowledge acquired about waste management and the respondents' inaction. This phenomenon can be explained by various factors, including the lack of collection and sorting infrastructure, or even weak institutional commitment.

3. Reasons for not sorting waste

When participants were asked why they did not sort their waste, two responses largely dominated

- **Lack of suitable infrastructure (55% of respondent):**

This finding shows that one of the main obstacles to waste sorting is the lack of collection and sorting points in neighborhoods. Respondents indicate that they simply do not have access to infrastructure that allows them to sort their waste in a convenient and organized manner.

- **Lack of clear information (45% of respondents):** Another major factor inhibiting the practice of sorting is the lack of information and concrete awareness about sorting and recycling methods. Even if participants are theoretically aware of recycling, they do not have the necessary information to implement it in their daily lives.

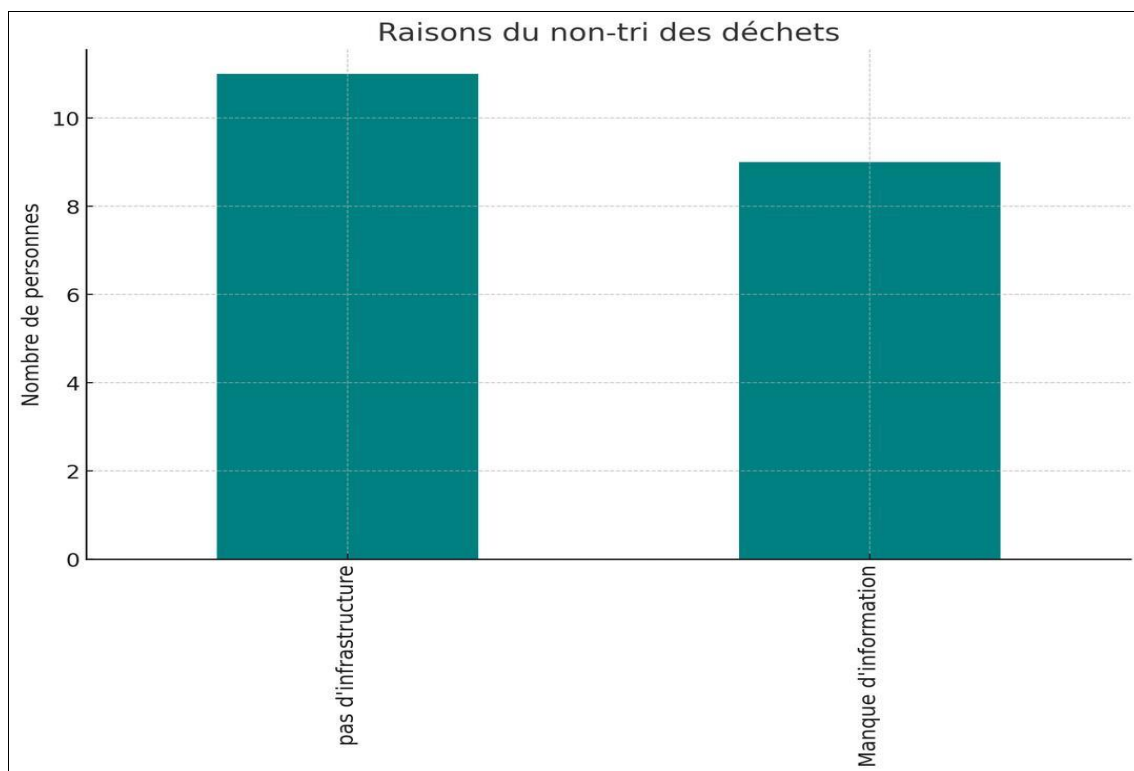


Fig 3: Reasons for not sorting waste

4. Perception of awareness campaigns

Regarding the effectiveness of awareness campaigns, 80% of participants considered these actions to be ineffective or ineffective. This reflects a lack of visibility and impact of the campaigns, as well as a lack of follow-up. It appears that

awareness-raising efforts fail to convince or motivate the population to adopt responsible waste management behaviors.

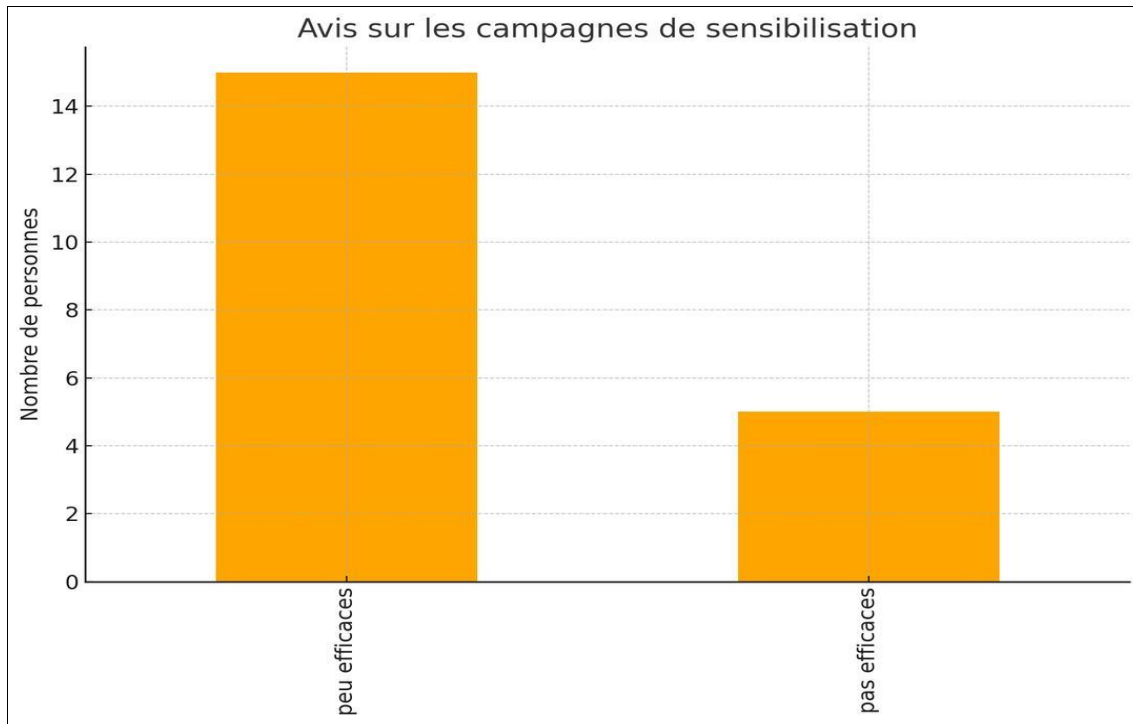


Fig 4: Opinions on awareness campaigns

5. Proposed solutions

Based on the results obtained and the issues identified, several recommendations can be made to strengthen the impact of awareness-raising actions and promote more sustainable waste management. These recommendations are divided into three main areas: awareness-raising, infrastructure, and the involvement of local stakeholders.

Strengthening awareness campaigns

Although awareness-raising has led to a significant increase in awareness of environmental issues, it is essential to strengthen it and adapt it to local realities in order to bring about tangible behavioral changes.

- **Education in schools and universities:** It is crucial to integrate environmental education sessions from an early age in schools and universities. This would help raise awareness among a new generation about the importance of sorting and recycling, and encourage a long-term change in mentality.
- **Use of local media and social media:** Local media (radio, television, newspapers) and social media should be used more intensively to reach a wide audience. More regular and diversified communication, including local testimonials and concrete examples, can strengthen the impact of awareness campaigns.
- **Organizing community events:** Organizing community events (workshops, forums, clean-up days, etc.) around waste management can help mobilize citizens and strengthen the commitment of local communities. These events should provide an opportunity to

concretely demonstrate sorting and recycling practices, while involving residents in collective actions.

- **Improving sorting and recycling infrastructure**
One of the major obstacles to the adoption of waste sorting practices is the lack of suitable infrastructure. To encourage sustainable change, it is essential to put in place the necessary recycling infrastructure.
- **Installing recycling bins in public spaces:** Installing recycling bins in neighborhoods, markets, schools, and other public places would make waste sorting more accessible and easier for citizens. These bins must be clearly labeled and adapted to different types of waste (plastic, paper, organic, etc.).
- **Development of accessible collection points:** Collection points for recyclable waste should be established in neighborhoods, with a regular and well-organized collection system. This would encourage residents to participate in sorting, knowing that their recyclable waste would be properly collected and processed.
- **Encouraging local waste recovery initiatives:** It is essential to support local waste recovery initiatives, such as composting or artisanal recycling projects. Local communities must be involved in creating solutions tailored to their needs, which would strengthen the impact of recycling at the local level.

▪ **Involvement of community stakeholders and authorities**

Effective waste management requires the active involvement of local authorities and community stakeholders.

- **Establishment of neighborhood committees:** It is recommended that neighborhood committees be established to oversee and organize waste management at the local level. These committees could ensure better management of sorting infrastructure and promote good practices among residents.
- **Role of community and religious leaders:** Community and religious leaders can play a key role in raising awareness and mobilizing populations. Their involvement in awareness campaigns would be a powerful lever for reaching a broad and diverse audience.
- **Strengthening partnerships between local authorities, NGOs, and citizens:** There is a need to strengthen partnerships between local authorities, non-governmental organizations (NGOs), and citizens to develop common and coherent strategies for waste management. These partnerships would help coordinate efforts, pool resources, and ensure effective monitoring of the actions implemented.

Discussion

The results of this research show that it is striking to note that none of the participants practice waste sorting. This highlights a significant contradiction between the knowledge acquired about waste management and the inaction of the respondents. This phenomenon can be explained by various factors, including the lack of collection and sorting infrastructure, or even weak institutional commitment. This corroborates the findings of Diabaté (2021) ^[3]. He states that this phenomenon is common in many developing countries where citizens are well informed about environmental issues, but where material conditions and public policies do not support ecological behaviors. It is therefore essential to bridge this gap by putting in place adequate infrastructure, practical resources, and institutional support to encourage action.

Regarding the reasons for not sorting waste, our results corroborate Coulibaly's (2020) ^[2] analysis, which highlights that the lack of adequate infrastructure (such as sorting bins, collection centers, or municipal programs) is a major obstacle to the development of ecological behaviors. Moreover, insufficient investment in this infrastructure is a reality often highlighted in government reports, such as Mali's National Solid Waste Management Plan.

Regarding the effectiveness of awareness campaigns, the results of this research corroborate those of Touré (2019) ^[10] who says that environmental communication in Mali often suffers from its one-off nature and its lack of adaptation to the local context. In addition, these campaigns lack a long-term strategy. For awareness raising to be truly effective, it must not only be continuous and repeated, but also actively involve local populations, particularly through concrete actions on the ground (training, distribution of sorting equipment, etc.). Other authors have had similar results such as Bertolini, A. (2020) ^[1] and Konaté, S. (2016) ^[6].

Conclusion

This work focuses on evaluating the impact of raising awareness of responsible waste management in commune V of Bamako. The study is based on a mixed methodology combining quantitative surveys of the population and qualitative interviews.

Overall results show that awareness of waste management in Mali remains relatively superficial and disconnected from practical realities on the ground. Actions undertaken are not sufficiently supported by concrete solutions adapted to local needs. To improve the situation, it is necessary to establish accessible infrastructure, such as sorting points in neighborhoods, practical training in schools, and a clear and coherent municipal recycling policy.

To make awareness-raising a real driver of environmental transformation, it is imperative to include it in a global, inclusive and sustainable approach.

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