Urban Africa Risk Knowledge

Briefing

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Improving solid waste management practices and addressing associated health risks in Dakar, Senegal

Dakar can efficiently handle current and future volumes of solid waste if the following steps are taken: i) informal waste collection is synchronised with that of the municipal authorities; ii) environmental laws and regulations are enforced; iii) public awarenesss of proper solid waste management (SWM) practices is promoted; and iv) sustainable financing of the sector is assured. These steps are critical for informal settlements which are home to most of the urban population, yet are underserved by the municipal authorities. In addition, a reliance on open dumpsites continues to place public health at risk. This brief assesses current SWM practice and outlines stakeholder opinions on ways to improve SWM, both in the short and long term. The findings indicate inefficient SWM practices that put residents at risk, due to direct impacts and through secondary pathways, such as flooding.

Introduction

Africa is the fastest urbanising region in the world with 56 per cent of its population projected to be living in urban areas by 2050, up from 40 per cent in 2015.[1] This rapid pace of urbanisation comes with several challenges, including the high generation of solid waste, which in most cities has outpaced the rates of collection and disposal, leading to indiscriminate dumping. This challenge is compounded by a low allocation of resources to the sector, leading to inefficiencies in collection and disposal with residents coexisting with mountains of waste dumped in their communities. These challenges, in addition to the reliance on open dumpsites as the final destination for municipal waste, have implications for public and environmental health across the continent.

The situation is especially dire for slum dwellers who are underserved by public and private service providers, yet are a large proportion of Africa's urban population. In the interests of public health, it is important to assess current practice as well as community views on solutions to the seemingly intractable challenge of solid waste management in African cities.

Research objectives

As the economic and industrial hub in Senegal, Dakar is the main solid waste producer in the country with about 2,000 tons of solid waste generated per day.[2] However, SWM practices are yet to be aligned with the large volumes of waste generated.

A 2017 study[3] was conducted to generate evidence on SWM practices, perceived health risks associated with poor SWM, and

Policy Pointers

- Improvements to the working conditions of SWM personnel. At a minimum, these should include enforcement of safety regulations and regular medical check-ups as part of employee benefits, together with decent wages.
- Efforts to improve waste storage within households, encouraging waste to be sorted before disposal and recycling as a waste reduction strategy. Public education is needed to spur a change in behaviour among residents to avoid illegal dumping.
- Improved infrastructure to widen neighbourhood streets and allow access for sanitation trucks to increase efficiency in waste collection and transportation in all areas of the city.
- Fostering of dialogue and communication by municipal authorities among various stakeholders (those from national government, other municipal authorities, communities and informal service providers}, including incorporating informal waste collectors into mainstream SWM, to mitigate the ineffectiveness of SWM in the city.

community opinions on ways to improve SWM. The study was carried out in three sites in Dakar: (1) Keur Massar and Malika informal settlements located near the city's main dumpsite (Mbeubeuss); (2) Thiaroye Djiddah Kao, an area affected by frequent flooding; and (3) Medina/Patte d'Oie, which was selected as the non-slum comparison site.

Findings

Waste storage

In the three sites, only 27 per cent of households were using safe storage (closed containers) for their waste. The largest proportion of households using safe storage was in Medina/Patte d'Oie with 34 per cent, while the lowest was in Keur Massar/ Malika with 12 per cent. This may be explained by the nature of the settlements, given that Medina is a non-slum area where households may have invested in safe storage compared to those living in slum areas. Differences in educational attainment among household members may further explain the findings. Medina/Patte d'Oie has a higher proportion of members with secondary education and university/college education compared to residents in the other settlements.

Collection

Municipal waste collection services were unequally available across the three sites. Almost all households (99.7 per cent) in Medina/Patte d'Oie received these services, while in Keu Massar/Malika only 77 per cent received them. In contrast, the proportion of households relying on informal waste collection services (typically offered by handcart handlers) was higher in Keu Massar/Malika (21 per cent) than in Djiddah Thiaroye Kao (4.7 per cent) and Medina (0.3 per cent).

Willingness to pay for waste collection services

Greater willingness to pay for waste collection services was associated with an absence of effective public services and this was evident in communities located nearer to the dumpsite. The proportion of households willing to pay for collection services was two times higher among those not adequately served by the municipality in Keur Massar/Malika (62 per cent), compared to Medina/Patte d'Oie (30 per cent), or Djiddah Thiaroye Kao (32 per cent).

Disposal

Across the three sites, no sorting of household waste was carried out before disposal. However, a third of households in the study sites was willing to sort household waste, and this varied by site. The proportion of households willing to sort solid waste was higher in Medina/Patte d'Oie (40 per cent) than in the other sites, where it was less than 10 per cent. Unauthorised dumping of solid waste was more common in Keur Massar/Malika (31 per cent) than in the other two sites (≤ 11 per cent). In all the three sites, toxic household waste, such as batteries and electronics, was disposed of unsafely; these were commonly mixed with other non-hazardous household waste.

Recycling and composting

Just over a third of households (34 per cent) had heard about recycling, while only 8 per cent had heard about composting. Most households (85 per cent) reported willingness to compost waste if appropriate equipment was available, although the proportion was lower in Keur Massar/Malika (45 per cent) than in Djiddah Thiaroye Kao (74 per cent) and Medina/Patte d'Oie (87 per cent). The low proportion of households willing to compost waste in Keur Massar/Malika was because the residents were more interested in composting if there were opportunities for resale (46 per cent). In contrast, a much lower proportion of households in Djiddah Thiaroye Kao (7 per cent) and Medina/Patte d'Oie (9 per cent) was interested in composting if there were opportunities for resale.

Environmental and health risks

Only 3.3 per cent of households perceived themselves to be at high risk or very high risk of health- and environment-related hazards from poor SWM. The most commonly cited hazards were unpleasant smell (27 per cent), children playing with garbage (16 per cent), and smoke from the dumpsite (15 per cent).

Health problems associated with exposure to solid waste

Residents in the three study sites were asked if they had experienced health problems in the previous 12 months. More residents from Keur Maasa/Malika (5 per cent) said that they had experienced such problems, compared to fewer than 1 per cent in both Djiddah Thiaroye Kao and Medina/Patte d'Oie.

The most commonly reported health problems across the three sites were asthma (30 per cent), skin problems (25 per cent), chest problems (23 per cent), and allergies (11 per cent). There were variations in reported health problems across the sites. In Keur Massar/Malika, the reported health problems were asthma (42 per cent), chest problems (29 per cent), allergies (15 per cent), and skin problems (8 per cent), whereas in Djiddah Thiaroye Kao, skin problems (87 per cent) and cholera/diarrhoea (14 per cent) were reported.

Challenges

To understand the challenges in the SWM sector, qualitative interviews (focus group discussions and key informant interviews) were carried out with various stakeholders, including members of the study communities, policy makers, and

those working directly in the sector, such as transporters, waste collectors and waste pickers. For the communities, the most important challenge regarding SWM was the inefficient collection of solid waste, identified by 63 per cent of households. In addition, over half of the respondents (52 per cent) felt that education/communication activities should be undertaken to ensure effective SWM in the city. Little or no control of illegal dumpsites and the absence of initiatives to sort waste were other challenges identified by 30 per cent and 27 per cent of households respectively. However, the magnitude of these challenges varied across sites. The three main waste-related problems in Keur Massar/Malika and Djiddah Thiaroye Kao were ineffective and inefficient collection, illegal dumpsites, and lack of public education/communication about SWM. In contrast, the three most important waste-related problems in Medina/Patte d'Oie were ineffective waste collection, lack of public education/communication, and lack of solid waste sorting.

To add to these challenges, SWM sector workers reported experiences of discrimination from the communities they serve and threats to their physical and financial wellbeing.

Stakeholders' views on steps to improve SWM in Dakar

- Improve/widen access roads to neighbourhoods.
- Incorporate informal waste collectors into mainstream SWM through synchronised collection with the municipal trucks.
- Enforce existing environmental laws, and
- Provide adequate financing to the SWM sector through increased taxation and enforcement of the 'polluter pays' principle.

Improving SWM practices

Stakeholders, including officials from the national government (eg the Waste Management and Coordination Unit-UCG), municipal authorities, transporters of solid waste, waste pickers, and community members residing close to the Mbeubeuss dumpsite, shared their ideas on how to improve SWM. The results indicated that the challenges faced by collectors and transporters in accessing neighbourhoods were a major barrier to an effective SWM system. Informal collectors, such as cart handlers, who negotiate the narrow streets, fill an important gap in SWM collection. However, they were also seen as the cause of many illegal dumpsites within neighbourhoods.

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Some suggested incorporating cart handlers into mainstream SWM to avoid illegal dumping, for example by ensuring that they synchronise their collection with the municipality so that they can dump the waste on official trucks to be disposed of properly. Enforcement of existing environmental laws was seen as an effective way to improve SWM practices in the city. Lastly, adequate financing of the sector was seen as key towards improving SWM in the city. Various approaches to sustainable financing were suggested, including increased taxation of the sector and enforcement of the 'polluter pays' principle.

Policy actions by municipal authorities to ensure better SWM in Dakar

- Commit more government resources to:
  - Improve working conditions of SWM personnel
  - Promote public education on proper storage, separation, recycling and disposal of waste, and
  - Improve infrastructure to ensure access to all neighbourhoods by collection trucks.
- Foster dialogue and communitcation among SWM stakeholders to address ineffective SWM in the city.
- Enforce environmental laws.

Recommendations

The Dakar study reveals that household solid waste storage is far from optimal, with the use of unsafe containers being the most common practice. In addition, there is a substantial dumping of waste in residential neighbourhoods due to narrow streets that restrict access by trucks. The gap created by this is filled by cart handlers who are not incorporated fully into the sector, but have an opportunity to contribute to proper SWM if their activities are streamlined with those of the municipal authorities. Another finding indicates that there is little recycling and composting, and that there is interest in these being pegged on economic returns and the separation of waste at source, which is currently not practiced.

Communities are aware of the health impacts of their exposure to solid waste and they identified solutions, together with other stakeholders, to

improve SWM through the inclusion of informal waste collectors in the sector, the enforcement of environmental laws, sustainable financing of the sector, and ensuring the physical and financial wellbeing of SWM workers.

It is clear that municipal authorities need to take greater responsibility to improve SWM in the city by committing additional resources from government to tackle the solid waste challenge.

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The African Population and Health Research Center (APHRC) is an African-led institution committed to generating evidence to inform decision making on the most critical challenges facing the continent. Based in Nairobi, Kenya, APHRC works across sub-Saharan Africa through three integrated programmatic divisions: research which emphasises health and wellbeing; research capacity strengthening to deepen the skills of African scholars; and policy engagement and communications to support greater uptake of evidence in policy and decision making in Africa.

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Urban Africa Risk Knowledge

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