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Integrated Solid Waste Management: Decentralised service delivery case study of Nakuru municipality, Kenya.

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BRIEFING PAPER

Abstract

Effective Solid Waste Management (SWM) in Kenya is a major challenge facing responsible Local Authorities (LAs) across the country. The challenge is more serious in urban centres, where solid waste generation rate outstrips the ability of LAs to manage the same effectively. In Nakuru town, the fourth largest urban centre in Kenya, daily solid waste generation is approximated at 250 tonnes. Before changes were introduced in 2006, the average daily collection rate was less than 30%. To resolve this challenge on domestic solid waste handling, the Municipal Council of Nakuru (MCN) enacted 2006 Nakuru Environmental Management by-laws that paved the way for decentralized service delivery of domestic solid waste management. This article outlines the legal changes that were made, and the opportunities it has opened for both cleaning up the town and generating incomes for small private waste entrepreneurs and community-based groups. It includes a case study of a successful community-based waste enterprise. It ends by highlighting some of the remaining challenges.

Introduction

Kenya is urbanising fast, and as it does so, the problems of solid waste management are escalating. A recent report (World Bank 2012) showed that the amount of solid waste is growing at an even faster rate than urbanisation globally, as urban residents on average begin to consume more and therefore generate more waste. Kenya's urban population has grown rapidly over the past ten years. Figures are somewhat disputed, but the 2009 census found an urban population of 12.9 million (32%) compared to 5.6 million (19%) in 1999. It is predicted that the amount of municipal solid waste generated in Kenya will increase from 2,000 tonnes per day currently, to 10,171 tonnes per day by 2025 (Hoornweg & Bhada-Tata, 2012). Although the economy is growing relatively quickly, and the country is described as the 'powerhouse' of the region, it is anticipated that by 2020, urban poverty will represent almost half (48.9%) of the total poverty in the country (Kessides 2006).

In medium-sized towns such as Nakuru, the problems can be even more acute. The population continues to rise rapidly (at even higher rates than national averages), and the capacities and resources to manage and the associated problems of solid waste management. In its early days as a town, Nakuru took great pride in its cleanliness. This memory remains alive among the city fathers and they are keen to maintain (or regain) this image of the town partly because of its high profile nature for tourists visiting the Nakuru National Park. Needless to say, the low-income settlements within the town are the ones which suffer most from the failings of the solid waste management system. However, recent changes in regulations have meant that some low income residents have been able to benefit by running successful waste collection businesses whilst also making a significant contribution to cleaning up their neighbourhoods.

Background to Nakuru Municipality

Nakuru town is the fourth largest urban centre in Kenya after Nairobi, Mombasa and Kisumu cities. At the time of the 2009 Kenya's population census, the Nakuru municipality / town had a total population of 473,000. The Municipality is now part of the wider Nakuru County, one of 47 devolved governance units established under the 2010 constitution. Estimates are that the population of the municipality is growing at a rate of 13% per year, making it one of the fastest growing towns in Africa (UN Habitat 2010).

Waste generation rates in Nakuru municipality

Approximately 250 tonnes of solid wastes are generated every day within Nakuru municipality. When the Municipal Department of Environment was established in 1997, only about 20% of this was being collected. The system was entirely run by the Municipality, although a small number of private companies also collected waste from higher-income settlements in the town. These were not regulated, and operated outside of Municipal controls. In common with many cities in the developing world, a high proportion of the waste generated is organic material (46%) (MCN 2010).

Solid Waste Management Policies in Nakuru

As is commonly the case, domestic solid waste management in Nakuru is managed by the Municipal Department of Environment. Until the mid-2000s, the Municipality itself provided the only legal, recognised waste collection and disposal services. However, these were generally only able to serve the Central Business District and higher-income residential areas with any regularity. In the low-income neighbourhoods, waste was either dumped in the streets, or collected by a few un-regulated entrepreneurs. Uncollected solid waste blocks drainage channels which can result in flooding in the lower-lying settlements. Waste pickers recycled a small proportion of the waste, although the more valuable elements tended to be collected by the Council services and was picked over by extremely poor, informal waste pickers once it reached the main dump site. There were attempts to improve the situation in low-income areas through constructing secondary waste collection chambers, but these quickly overflowed, and the waste was spread about by livestock. They were not emptied regularly enough and became an eyesore and a health hazard as much as the existing waste dumping sites.

In an effort to address the situation, Practical Action lobbied the Municipality to consider regularising and encouraging the establishment of a wider range of waste management enterprises, including community-based enterprises. It was hoped that this would allow for income-generating opportunities for poor residents, and help address the solid-waste management problems particularly in the low-income neighbourhoods. This was allowable under national legislation governing both Waste Management and Local Authorities who have the power to formulate their own by-laws.

New by-laws brought in: 2006

In 2006, new by-laws were brought into force which provided for decentralised service delivery for domestic waste collection, transportation and safe disposal at the Council refuse site. Refuse management zones (26) have been officially gazetted, falling into three categories: (i) Community based organisation zones (ii) Private waste handlers' zones and (iii) Municipal Council zones.

Tenders are advertised and awarded to competent local waste organisations, with contracts usually lasting for 2 years. The MCN organises regular clean-ups, seminars, workshops and training for stakeholders to create awareness about solid waste management, and to ensure compliance by residents and the licensed organisations.

The role of the Council has changed from being largely a service provider, to being a regulator of other service providers. It only provides waste collection services itself in two of the zones (one of which is the central business district). The municipality with other stakeholders are enhancing enforcement of the Environmental by-laws of 2006 to garbage producers (households, businesses, industries & institutions) to embrace and support decentralized SWM in Nakuru.

Practical Action's support to community-based waste initiatives

Practical Action has been working on issues of waste management for the last 8 years with the dual objectives of improving the environment in low-income settlements, and increasing incomes for those who can be involved in the enterprises. This has been through two projects, one funded by Comic Relief (2005-2007), and a second funded by the Dutch Government (DGIS) in partnership with a Dutch Non-Governmental Organization, WASTE Netherlands.

In the two projects, Practical Action worked with local community groups and medium-sized private enterprises to develop market led approaches to service provision in domestic waste services. Other stakeholders included the MCN for regulation of the sub-sector, Nakuru Housing and Environmental Cooperative Society (NAHECO) – a Community Savings and Credit Cooperative (SACCO) for provision of small scale investment funds in waste enterprises, Family Bank – a local bank for higher investments financing in waste enterprises. In addition, Practical Action equipped communities with skills and knowledge in Integrated Solid Waste Management (ISWM), business development, waste recovery and value addition, market development, record keeping, leadership and institutional development among others.

Results to date

As the Council's Director of Environment explains, ''The Council… has zoned the entire municipality into 26 refuse collection zones, out of which 24 have since been tendered for and awarded to 24 private waste enterprises for refuse collection service provision, creating jobs for approximately 500 youths within the municipality… the remaining 2 refuse zones (Central Business District and Viwanda zones) are managed by the Council due to constant requirement of refuse collection on a daily basis."(Kimani S.N. 2013 Pg. 9).

On average the 24 licensed solid waste collection service providers, each covers approximately an area between 4,814,031 – 147,015m² (Denchukwu O. J. 2009, Pg. 49) in respective MCN allocated refuse collection zones. Given daily domestic waste generation rate of 250 tonnes/day in Nakuru town, the average waste collection is at 64% (Practical Action/MCN 2010), translating to overall waste collection of 160 tonnes of solid waste per day. 45% is taken to the main dumpsite, and 19% is recovered for re-use and recycling by small waste enterprises (Denchukwu, 2009 p.42).

Thus domestic solid waste collection and safe disposal in Nakuru municipality has significantly improved from less than 30%/day before 2006 to current level of 64% per day of municipality's average waste generation rate of 250 tonnes/day and this waste collection rate keeps on improving. The council's ambition is to further increase the rate of collection, and reduce the amount that needs to be taken to the dump site.

Table 1: Various sectors and average solid waste collection/day in 2010

Formal sector	**% of average solid waste collection/day**
MCN	15%
Private Waste Collection Enterprises	16%
Community Waste Collection Enterprises	14%
Total	**45% (Total waste dispose to dumpsite)**
Informal sector	**% of average solid waste collection/day**
Junk shop (waste paper)	4%
Junk shops (plastic/metal)	13%
Composting/animal feed	2%
Total	**19% (Total waste recovered)**
Total waste collection/day	**64%**
Total waste not collection/day	**36%**

Source: Practical Action/MCN (2010) SESP Report, Pg. 28.

As the case study of St Joseph's Environmental Community Waste Enterprise shows, some community-based enterprises have been able to grow and flourish over time. They have graduated away from Practical Action support to stand on their own, make their own investments and expand their activities over time.

Lessons Learnt

Long Term Benefits and Sustainability

- Decentralized service delivery in SWM collection services is feasible with active participation of organized and supported local citizenry groups. Coverage increased from 30% to 64% in 2010.
- User pay principle is applied where households & institutions pay fees for collection services directly to the service provider. This helps to support sustainability of the decentralized service provision, unlike before when the services were free through the Council.
- The MCN now plays the role of a monitoring, by-laws enforcement and regulation of decentralized SWM sub-sector while local waste enterprises provide the collection services – a successful paradigm shift that can be replicated by other local authorities as best practice in service provision.
- With sustained enabling policy environment by municipalities for public private participation, emergence, development and proliferation of sustainable local community waste enterprises is possible. Their services can boost urban environmental cleanliness and enhance livelihoods.
- The MCN was the first local authority in Kenya to formally and successfully decentralize domestic solid waste service provision in Nakuru town. Given the new devolved governance dispensation in Kenya, the model has greater potential for scaling up both in Nakuru County but across the Country.

The Challenges

- In the low-income settlements, few access roads to some residential plots limit waste collection.
- Some households pose compliance challenges arguing that refuse collection is Council job for free. This unwilling to pay mind set is mostly pronounced in the low income settlements. However, licensed waste enterprises counter this by striking agreement with plot owners who pay for tenants.
- Sustainable financing is required for investments in waste enterprises, something which is challenging for young community waste enterprises without much track record and experience. Other challenges include limited hands on experience, skills and efficient transportation logistics.
- Although user pay principle has taken root in domestic waste management, however, some business entities pay annual business fees together with conservancy fee – the latter for waste collection. Where the Council does not provide the waste collection, the business entities are serviced by licensed waste enterprises but payment becomes an issue with latter being asked to claim it from the Council which is slow to be effected – an incoherence in service provision.
- Licenced waste enterprises often urge that Council fees are too high and that a review is needed. The fees include: Trade permit: Ksh. 17,000.00 p/a, Conservancy fee: Ksh. 4,800.00 p/a, Disposal fee: Ksh. 200 - 400.00 disposal trip at refuse site depending on truck size, Inspection fee: Ksh. 5,000.00 monthly and NEMA License fee: Ksh. 8,000.00 p/a. However, the Council has shown signs to review the fees to enhance motivation among licensed waste enterprises.
- Filled up refuse disposal site which sometimes the waste at the disposal site spreads to the road and it is difficult to drive up the heaps of waste especially during rainy season. However, the MCN is currently prospecting for a new refuse site.

Figure 1: Compliant neighbourhood residential plots serviced by licensed waste collection enterprises, Plastics Solid waste recovery enterprise and recovered plastics value addition (Plastics granulation).

A human Success Story of St. Josephs Environmental Community Waste Enterprise in Nakuru Town, Kenya

St. Joseph's self-help group was started in 2002 in response to Municipal Council of Nakuru initiative of working with community groups in revitalizing environmental cleanliness in Nakuru. Through PPP initiative, the Practical Action and the MCN encouraged

able community groups to get involved in paid solid waste collection and transportation service delivery for environmental cleanliness and livelihoods. St. Josephs successfully applied for the same and in 2004, the group started income generation project of garbage collection, transportation and disposal at Council refuse site at Gioto. The group delivers solid waste collection and transportation services from low income settlements of Shaabab Phase 1&2, Koinange, Kenland and a major section of Kaptembwo in Nakuru. It comprises of 30 men and 19 women strong members.

Over the years, St. Joseph's group strengthened her operational framework to increase coverage of solid waste collection services to local resident clients. These include effective supply to clients with polythene paper bags, each 4 pieces monthly for safe storage of garbage awaiting collection and transportation to dumpsite. Actual collection from the clients is done from 8.00am to 5.00pm per day and collection is effected once weekly. The group's waste collection days runs from Monday to Friday every week. Waste collection is done from household to household (door to door) as well as from residential plot to another plot (communal). Garbage collection follows established routes with definite time each collection day of the week.

Current total clientele base as at January 2013 is 2,500 clients. A client here does not imply a household. In the working context of St. Joseph's group, this implies a customer most of whom are landlords and business premises each comprising of several households depending on respective residential settlement. For instance, in the old ISSUE 2 intervention area low income settlement of Kaptemwbo, St. Josephs has 89 landlord/ladies clients. Each client owns multi household tenant residential plot(s) – each plot with on average 20 households. This implies in this settlement alone, St. Josephs renders solid waste collection services to 1,780 households. Overall, the waste enterprise of is reserving approximately 8,000 households.

Monthly service user fees depend on the size of the client's house. Fees range from Kshs. 150.00 for self-contained houses, Kshs.100.00 for bed seater houses and Kshs. 50.00 for single roomed clients. The sustainability of the organization centers around user fees collected from the clients every month. For the last one year, gross user fees collections shot up from Kshs. Approx. 110,000.00 up to on average of Kshs. 130,000.00 by end of December 2012.

At present, the group has 15 employees who draw their livelihood income and sustenance from the waste enterprise. These comprise of: 1 male driver, 3 men supervisors, 5 men garbage collectors, 3 woman revenue collectors and 3 women marketers. Supervisors and garbage collectors are provided with health and safety protective clothing during their work - gumboots, overalls, gloves and dust masks. The two women marketers carry out duties of recruiting new clients. In addition, marketers together with the revenue collector support the organization in ensuring that clients pay user fees. They issue invoices to clients five days before each month end, receive and receipt all accruing user fees incomes and keep clients' payment records in the office.

Towards the end of 2008, St. Josephs transformed from a self-help group status to a more legal entity – a limited company called JOSEKAP. This new status enables the organization able to enter into business contracts as well as access development loans in main line banks. In December 2008, St. Joseph's in its new legally recognized status applied for a loan at Family Bank that administers waste venture funds from WASTE Netherlands. This was for purpose of buying own garbage transportation means to boost the waste collection business. Family Bank finally gave Ksh. 570,000.00 loan and St. Joseph's contributed Ksh. 180,000.00 which the leaders used to buy a 7 tone Toyota lorry (KXP 631) worth Ksh. 750,000.00 in March 2009. The loan is repayable within 24 months at 10% interest rate on reducing balance. JOSEKAP has since completed repaying the loan.

Before purchasing own transportation means, St. Joseph's leaders used to hire a 3.3 tone canter to transport their garbage at Ksh. 2,500.00 per trip. They used to make one trip per day for five days weekly (Monday – Friday), translating to a total vehicle hire cost of Ksh. 12,500.00/week and a minimum of Ksh. 50,000 a month. Now with their own vehicle, they make two trips per day for two days weekly (Wednesday – Thursday). Other free days in the week the vehicle is hired to generate more income - e.g. ferrying sand making Ksh. 3,000.00 -4000.00 per trip depending on distance covered within Nakuru municipality. The leaders aim further to offer their lorry to other licensed groups in solid waste management for transportation at affordably negotiable fee.

St. Joseph's leaders talking to visitors outside their office and their own 7 tone KXP 631 Toyota lorry.

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