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SUSTAINABLE DEVELOPMENT OF WATER RESOURCES, WATER SUPPLY AND ENVIRONMENTAL SANITATION

Sustainable Water and Sanitation Services for the Urban Poor in Nairobi*Kariuki MUGO, Kenya*

Slum dwellers in Nairobi constitute the majority of the city's population, with an estimated 60 per cent of the official total population of 2.85 million people living in slums and informal settlements. This is a devastating statistic bearing in mind that this population lacks basic access to water supply and environmental sanitation services and has led to various environmental problems and high poverty levels. This paper draws the experiences of Maji na Ufanisi (Water & Development, a Kenyan NGO, in providing these basic services to slum dwellers in the city. This has been through facilitation of community organizations to undertake provision of these services, by innovative integration of water supply and environmental sanitation services provision and enterprise development. In experiences drawn from implementation of this project, it is arguably conclusive that established community groups can sustain provision of WES services as a way of widening their economic livelihoods.

Overview

KENYA'S capital city, Nairobi, is home to some of the world's most dense, unsanitary and insecure slums. With an annual growth rate of 5 per cent, the city will host more than 5 million people by the year 2020, of which nearly 3 million will live in informal and often precarious settlements, if current trends prevail.

Life in Nairobi's slums is quite difficult by any standard. On average, as many as 1,200 people live on one square hectare, sometimes in shacks as small as 10 by 10 feet. In some areas like Kibera (the largest urban slum in the world), it is home to about 700,000 people living within 225 hectares of land, translating to a population density of over 3,100 persons per hectare. Consequently, basic necessities such as a clean water supply, adequate sanitation and drainage are extremely scant or non-existent and people live in cramped, dirty conditions.

The per capita water coverage in these slum settlements is very low and the demand far outstrips the supply. This is mainly as a result of exorbitant prices that are charged by vendors, as well as the inadequacy and unreliability of the existing (and mainly illegal) water systems. Characteristically, water kiosks (booths) sell water at three or more times the tariff charged by NWSC (Nairobi Water and Sewerage Company) (up to KShs. 20 per 20 litre can). These kiosks are usually the only source of water for the poor residents, despite the high prices and poor quality of water caused by use of sub-standard pipelines. Besides, the connections are mainly done by perforation of the trunk system leading to serious interruptions of water supply to other residential

areas, not to mention that the reticulation system mainly consists of low-grade electric conduits, which usually rupture leading to direct contamination of drinking water with the ubiquitous raw sewage.

In terms of sanitation systems, pit latrines, albeit scarce, constitute the major mode of excreta disposal in the slums and peri-urban settlements given the fact that there are hardly any conventional sewerage systems. Most of these toilet facilities are commercialized and the poor people generally pay a high premium to access them. The situation is sorry, with as many as 400 people sharing one poorly built and maintained toilet. Besides eroding the dignity and self-respect of residents, the sharing of one toilet by so many people heavily contributes to the numerous health and environmental problems in the slums.

In all these neighbourhoods, shortage of pit latrines is caused by severe lack of space as well as the unwillingness of landlords to incur additional expenses to build them. The low per capita toilet coverage and high access fees leads to majority of the residents using open spaces to relieve themselves, resulting to ubiquitous human waste litter that characterize these settlements. Even where pit latrines exist, they are left unexhausted to overflow or deliberately directed to a tributary of Nairobi River that transects the entire city.

Additionally, many informal settlements do not have access to baths, showers and drainage systems. These facilities, as the case of toilets, are inaccessible (if in any case available) to the poor, and greatly contribute to the sorry situation of water and environmental sanitation in these critical urban settlements.

Electricity, cooking fuel, education, health care, adequate shelter, and financial services are in short supply, except in small quantities and at extremely high unit costs. Cash flow is prohibitive, with average monthly spending rarely exceeding Kenya Shillings 3,000 (approximately US\$ 40), of which 30 per cent is often allocated to housing. Employment necessary to support such spending is precarious, often varying from part-time casual labour in the formal sector (industrial and domestic), to petty trade, small-scale manufacturing, and illicit activities. This coupled with the poor water and environmental conditions, directly translate to higher poverty levels and social problems synonymous with these neighbourhoods.

This squalor has a deep historical context dating back to 1902, when the British colonial government officially founded the City of Nairobi. The situation worsened in 1986, when the Kenyan Government embraced implementation of Structural Adjustment Programmes (SAPs), whose aim was rapid contribution towards economic growth. Their main requirement was that the State withdraws from direct service provision and subsidies. This adversely affected the urban poor as they had to make contributions so as to benefit from cost-sharing services. Myriad social and physical infrastructural problems went a scale higher, resulting to poor economic growth and reduced revenue collection among others. The civil service and the political leadership also took advantage of the prevailing circumstances and deeply engaged in corruption and laxity. At this point in time, the civil society and development partners had their job cut in the rural areas, and the situation in the urban settlements went out of hand with little notice.

Early Interventions

Historically, churches and their affiliated institutions have supported the urban poor, mainly around their own establishments. Their projects were mainly in areas of education, particularly vocational training, and provision of basic healthcare. Civil society organizations (CSOs) sprung up in response to the vacuum resulting from government's withdrawal from urban services provision. The CSOs primarily focused on relief and welfare activities, and they somehow managed to improve education, sanitation and refuse removal in some settlements, albeit on a very limited scale.

Due to the very complex nature of informal settlement development in Nairobi, attempts to improve water and environmental sanitation conditions in slums have had mixed results. Many international NGOs strategically positioned themselves to absorb development funds re-oriented from rural development in the mid and late nineties. This way, most of them ended up allocating themselves poor neighbourhoods and started implementing poorly planned and non-consultative projects. This was occasioned by the gap that existed in terms of policy, beneficiary knowledge and experience of both donors and beneficiaries. The emergence of the media as an independent and reliable voice also contributed to the publicity of their activities, with most of these organizations exploiting this virgin opportunity.

Development of water supply and sanitation physical infrastructure in Nairobi slums by these organizations was the obvious; permanent VIP latrines constructed in many slum villages as a way of combating "flying toilets", stand pipes strategically placed to bring the water "closer" to the people, basic hygiene education conducted and "caretaker committees" formed. And the NGOs moved on to other neighbourhoods to replicate the "success story".

Results of the interventions came to be the unexpected. The implementers had not analyzed strengths and shortcomings of these interventions at policy level. They seriously overlooked critical issues such as affordability, requisite standards for infrastructure, land tenure complications, role of key stakeholders and partners, and sustainability mechanisms.

In the course of planning, the projects were "hijacked" by slum lords, who "own" the land, and have formidable economic and political influence over their majority tenants. The latrines ended up being constructed in individual plots and within no time, the poor were being charged for their use or access was denied. The water points were taken over by vendors, who determined the cost of water, in complete disregard of affordability by the poor. The caretaker committees slowly disintegrated paving way to individual control and ownership of facilities that were originally meant for communal benefit.

KUWESA Project – Providing Basic Services, Motivating Local Enterprise

The outcome of the earlier interventions by international NGOs served as a critical lesson for many organizations striving to improve water and environmental sanitation for the urban poor in Nairobi. Maji na Ufanisi (MnU) – Water & Development, a Kenyan NGO, has managed to turn the erstwhile painful experiences into a success story in a number of villages within Nairobi. One of its key achievements, Kibera Usafi Water & Environmental Sanitation (KUWESA) Project is a story to re-tell.

Laini Saba is one of the ten mammoth villages of Kibera slum, one of the largest slum settlements in the world. KUWESA was started in 1997 as partnership between MnU, and the local residents. The project has been working towards increased community access to water and environmental sanitation, through Ushirika wa Usafi, (Cleanliness Cooperative) a CBO of 300 residents of Laini Saba, 75% of which are women.

The initial social capital building was done through short-term communal activities that would bring instant value and communal pride, mainly cleanup exercises. At the onset, mobilization was done through unstructured public communication but eventually, several caucus groups were formed to facilitate the process. These groups would help neighbours and friends to interact before and after the cleanup events. This created a strong sense of unity in participating in events for the common good. This was a difficult task since

Kenyan population is disaggregated along tribal lines, and this is quite evident in the city.

The phase was followed by Participatory Urban Appraisal (PUA) workshops, during which residents identified and prioritized water, drains and toilets as their primary concerns. Subsequently they organized their village into four (4) membership localities, which confederated into Ushirika wa Usafi, and was to become the community top structure. The final part of organization saw consolidation and formalization of the cooperative through development of a solid constitutional structure. This process was facilitated by MnU using logical capacity building modules. The group members envisioned products such as savings and credit scheme for social welfare, and subsidized user fees for CBO members as the most visible incentives on offer.

With technical and partial financial support from MnU, the CBO moved to implement a 2km length gravity water system in which the community designed the layout plan, obtained the spaces for water points and storage tanks, trenched the water line, purchased water meters, procured construction materials, provided storage and security of materials, bought two plots, negotiated way-leaves and licenses with City Council and Kenya Railways, as well as hired and supervised artisans during construction of the sanitation block. This process further enriched existing social capital. In the post implementation phase, the community has successfully managed to sustainably operate and maintain the facilities.

Using the above experience, the CBO has also been able to solve the perennial drainage problem in the neighbourhood through labour intensive construction of 2.4km long masonry-lined drains spearheaded by *Kamati ya Usafi ya Mazingira* (Cleanliness & Environment Committee). This was preceded by awareness creation for communal ownership, operation and maintenance during cleanups.

The CBO has been able to use WES activities/interventions to venture into other community development activities and projects. For instance, the CBO purchased houses within the village using savings from its water investment and as a way to secure ownership of the village for its members; It has also initiated and invested in a community savings and loaning scheme for its members with the aim of starting a community bank. The group has undertaken construction of a Community Centre with part funding from their water sales and the government; and has also invested in social welfare for its members. This has been a key factor in strengthening the initial group cohesion due to regular meetings. It has also possible through continuous review of the constitution and adherence to a formidable and all-inclusive decision-making structure.

The CBO has also constructed a pour-flush bio-latrines block with public showers and water booths in partnership with MnU. This block generates substantial income from gate fees paid by the average 3,000 daily visits and water levies. It also produces bio-gas for use in lighting and cooking for some members. Moreover, the organization owns

a Vacutag acquired with support from UN-Habitat, which undoubtedly is the most suitable exhaustion system for this densely populated area. The group leases out its Vacutag for reasonable fees, to other community groups in Kibera, involved in exhaustion of local pit latrines.

This CBO in partnership with MnU is currently in the process of integrating solid waste management in its operations to actively promote participation of its youthful generation in enterprise development, since most of the other activities have been spearheaded by senior members. This will mainly focus on exploiting the various links that constitute the continuum of a profitable and effective community-managed solid waste system.

KUWESA project has had the following impact:

1. Increased access to clean water supply in the village from 12% to 25%.
2. Increased sanitation coverage by 10% directly and 35% indirectly.
3. 48% of the area population has access to improved drainage system.
4. Increased vending, cart and vehicle mobility due to availability of more space in the street¹.
5. Enhanced community income base through sale and savings of water and sanitation facility profits and improved welfare of group members.
6. Improved community leadership, vision, interaction, cohesion, understanding and dialogue².
7. 80% water price reductions from KShs.10 per 20 litre can to KShs. 2.
8. Enhanced community skills in planning, implementation and management of project resources (staff, records, finances, assets and investments) as well as operation and maintenance.
9. Improved linkage with other CBOs in Nairobi who have replicated the KUWESA approach
10. CBO is both influential and a point of reference for other community initiatives.

Lessons Learnt

1. Urban communities are very capitalistic and lack basic social structures as opposed to rural communities. This means that there is need to involve them in common activities to arouse basic bonding and cohesion before conducting any formal mobilization activities.
2. Building of social capital is a lengthy and tiresome process but quite necessary to unleash trust and willingness to work together for the common good.
3. Prioritization of water supply and environmental sanitation components for poor urban communities has to be

¹ A fire engine is now able to reach some parts of the settlement.

² The community has conducted elections for 5 years whereby the leadership has been tested and developed.

done by beneficiaries in order to make them actively participate in the subsequent project phases.

4. Poor urban communities, if well-organized, have adequate capacity to initiate dialogue that can overcome most of the major project implementation handicaps. These include negotiating for construction space of communal facilities with “slum lords”, acquiring wayleave for pipelines and drainage networks, marketing of improved infrastructure usage and reduction of exploitive water and sanitation service costs by vendors and “slum lords”.
5. Water supply and environmental sanitation improvement for poor urban residents is perfect entry point for empowerment towards self-initiated development activities in an area (Once people are organized around an essential need such as water, they will organize themselves around other issues as well).
6. Projects modelled around enterprise have more opportunities for growth and sustainability based on availability of income and motivation of members to participate in their operations.

Conclusion

It is undoubtedly demonstrated that sustainable water supply and environmental sanitation can be a reality in poor urban neighbourhoods. This is amplified by the fact that urban communities are more receptive to business-oriented initiatives and hence the need to combine basic service delivery and creation of income opportunities for beneficiaries. This is the sure way to enhance sustainability and to motivate self-driven replication of improved-model water supply and environmental sanitation projects by beneficiary groups.

The Kibera experience reinforces an essential lesson: adequate water supply and environmental sanitation is fundamental to improved living standards and general development of poor urban dwellings. In its scarcity, water-borne/related illnesses, low economic productivity, exploitation by the rich, vulnerability to disasters and weak social systems prevail.

No matter how hard they work, the poor are then left with little hope of ascending the economic ladder. The process of providing these services can generate social capital for the residents that can replace the natural scarcity of physical and human capital and when this fundamental problem is solved - with beneficiaries play a leading role in defining the solution, they are strengthened and motivated, and the stage is set for unstoppable overall development.

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