

Fall 2006

## Solid Waste Management and Environmental Quality Provision in Unplanned Settlements of Kampala, Uganda

Lwasa Shuaib

*Makere University, Uganda, lwasa\_s@arts.mak.ac.ug*

Follow this and additional works at: <https://digitalcommons.kennesaw.edu/assr>

---

### Recommended Citation

Shuaib, Lwasa (2006) "Solid Waste Management and Environmental Quality Provision in Unplanned Settlements of Kampala, Uganda," *African Social Science Review*: Vol. 3 : Iss. 3 , Article 3.

Available at: <https://digitalcommons.kennesaw.edu/assr/vol3/iss3/3>

This Article is brought to you for free and open access by DigitalCommons@Kennesaw State University. It has been accepted for inclusion in African Social Science Review by an authorized editor of DigitalCommons@Kennesaw State University. For more information, please contact [digitalcommons@kennesaw.edu](mailto:digitalcommons@kennesaw.edu).

# *Solid Waste Management and Environmental Quality Provision in Unplanned Settlements of Kampala, Uganda*

Lwasa Shuaib  
Makerere University, Uganda

## **Abstract**

*Popular modes of provisioning for solid waste management in urban areas are increasingly becoming a common feature in urban management as it replaces the formal modes of utility provision. This is in response to the inadequate provision of the basic utilities including waste collection and disposal. The poor environment created has compelled popular masses to cooperate with the intention of reducing the problems of poor environmental sanitation. The quality of the environment in a given place will influence the quality of life and reproduction processes for its residents, and in this respect, the built environment is important in ensuring a good living environment. Urban utilities are instrumental in influencing this built environment, however, in cities of the developing countries utilities including solid waste management in unplanned urban places are inadequate. The result of this type of provision is that the local popular groups emerge to fill the gap created by the public sector failures to create opportunities for an improved environment. This paper attests to the emerging modes of provisioning for solid waste management and how they impact on the environmental quality of the unplanned settlements in Kampala, Uganda.*

## **Introduction**

In cities of the developing countries, utilities including solid waste management are inadequately provided especially among the poor communities in unplanned urban areas. As a consequence, different modes of 'provisioning' have emerged with responsibility shifting from the municipalities to private and community-based organizations, but much by individuals in the neighborhoods. As noted by the World Bank (1992), the value of the urban environment has been underestimated for too long, resulting in its degradation and such degradation of the urban environment has subsequently affected the peoples' well being in the urban 'place'

especially in developing cities. Degrading the urban environment has had three major effects; harming human health, reducing of economic productivity and loss of 'amenities' (Odemerho and Chokor, 1991, Lwasa 1999). The reduction in economic productivity describes how a failure in providing services such as waste management influences the modes of reproduction in an urban system. Unplanned settlements exhibit uniqueness because the environment both at a home and at the work place implies that its condition will always shape the 'reproduction processes' in a community. This is evident in many of the developing cities including Kampala, Uganda.

In Kampala, there has been rapid growth of unplanned settlements, which have created pressure on the urban environment (Lwasa 2004). The sprawl of these settlements within the city has outpaced the provision of facilities for solid waste management. As a consequence the economic reproduction of the urban poor is impeded by the environmental conditions, while the neighborhoods double as the work place and the home place in which reproduction takes place. It is the same place within which new generations come into being, grow up, and perform various activities, which are often informal and interact as well as relate to themselves and the available resources. These settlements are characterized by problems of garbage heaps, blocked open drains and obnoxious gases from rotting garbage. Poor health of the communities results from a permissive environment for breeding of pathogens in the neighborhoods thereby increasing morbidity. It also affects the economic productivity of the communities through the destruction of property and reduction in working days due to the illnesses. Poor environmental quality also affects amenities in the communities that include water supply, housing and access roads within the communities. This paper is based on a study, conducted in the neighborhood of Bwaise, one of the many unplanned settlements in Kampala, Uganda between September 1998 and March 1999.

### **Understanding Provisioning**

Provisioning in this paper denotes the different modes of reproduction regimes of the labor power; the set of agents involved in providing food, shelter, water, solid waste services and drainage to the population. Provisioning encompasses the type of relations, the way they are regulated, and the politics surrounding these relations as the state withdraws, and the informalization of public provision (Swyngedouw 1988, Massey 1994)). It is contrasted by 'provision' in which the state and state agents directly provide for the people. As the state withdraws from the provision of basic urban infrastructure, different groups, particularly the poor, are hit the most and yet they mostly live in informal or unplanned settlements. Because unplanned settlements are often characterized by poor environmental sanitation,

the communities have devised ways and means of providing for themselves to fill the gap created by the withdrawal of the state. The failure of urban authorities to provide adequate services to the communities has ushered in popular modes of provisioning based on community organization and management. These modes of provisioning have defined the way urban environments in different settlements are shaped. It is the focus of this paper to highlight the different modes of provisioning by the community in its effort to deal with solid waste management problems as well as the associated environmental health issues.

### *The Place*

The concept of place is conceptualized by Warde, (1988) as a local specificity in respect is a particular structure of people living in a place (i.e., education, regional origin); local endowment of resources for provisioning; local culture of interaction and organization; the specific historical experience of interaction and organization; the nature of the state and structure of its regulation. The 'place' therefore influences the reproduction processes and the environment in which the people live. This paper recognizes that it is the place where an individual reproduces his material (with the understanding that means of economic survival, activities and subsequent products comprise the reproduction of a community) and intellectual existence. The reproduction of communities is structured through actions and interactions with other people and institutions through the meanings given to the social actions. Since a place can be understood by its physical and social environment, the built up environment of unplanned settlement presents a unique place in which various actions shape the living conditions of the people. It is within this place that communities devise particular means through which they mobilize themselves to provide urban services. It is therefore important to note that community mobilization for the provisioning of solid waste utilities cannot be underestimated yet the power relations between the people and municipal authorities present political mechanisms through which utility provisioning is attained. The people have local resource allocation for solid waste management but also look at the authorities as the provider and responsible agency for the inadequate provision of the utility, while the authorities consider the people as the creators of the poor environment in the places. This in turn influences the modes of provisioning and the reproduction processes since it is the same place which acts as the work place.

## **Research Issue**

Neighborhoods of poorer groups have two common characteristics that greatly impact on environmental quality; the lack of readily available sewage connections or other systems to dispose of human wastes, and the lack of facilities for garbage collection and disposal. The World Bank (1992) observes that uncollected solid wastes remain the most urgent needs of the poorer groups. Bwaise III, is one of the unplanned settlement with poor environmental quality having clogged drains, garbage heaps, overflowing skips, silted drains, frequent flooding and poor health conditions. Solid waste management, a key environmental infrastructure is grossly inadequate or in poor conditions. The paper examines the modes of provisioning in the settlement and its impact on the environmental quality. It also examines the different modes of provisioning, which have emerged as a result of state failure to adequately provide the utility. The paper further examines the impacts of these conditions on health, prevalence of diseases, expenditure on health, house maintenance, structural stability, house dampness, and loss of property, destruction of amenities, all of which describe the locality or place and its resources for reproduction.

## **Objectives of the Study**

The main objective of the study is to assess the impact of modes of provision and provisioning for solid waste management on environmental quality in the area. In achieving this objective, the study is guided by the following specific objectives:

- To examine the nature and condition of solid waste management modes of provision and provisioning in Bwaise III.
- To establish factors influencing the operation and maintenance of solid waste management modes of provisioning in Bwaise III.
- To identify impacts of solid waste management on the living conditions of the community and environmental quality in Bwaise III
- To examine the relationships between morbidity and the poor environment in the area
- To suggest possible solutions to improvement of the environmental conditions in the study area and unplanned settlements in general.

## *Methodology*

The study was conducted using a case study approach with several methods. The research design involved the use of spatial data of housing digitized from the topographic sheets of Kampala 71/1/12SW/3 and 71/1/17NW/2 at a scale of 1:2500. This constituted the sampling frame with a total of 905 units imported in the SPSS tables for sampling. A randomly selected sample was drawn using SPSS program. Using a statistically determined sample size, the housing units were then randomly selected from the database and the selected housing units displayed using ArcView/GIS program for field data collection. Data were collected from occupants of the selected housing units. A total sample size of 237 was statistically determined for the research. The analysis of data involved using the SPSS program to generate frequencies and correlations while Geographic Information Science techniques were utilized for spatial analysis of the environmental health problems.

## **A description of the Place**

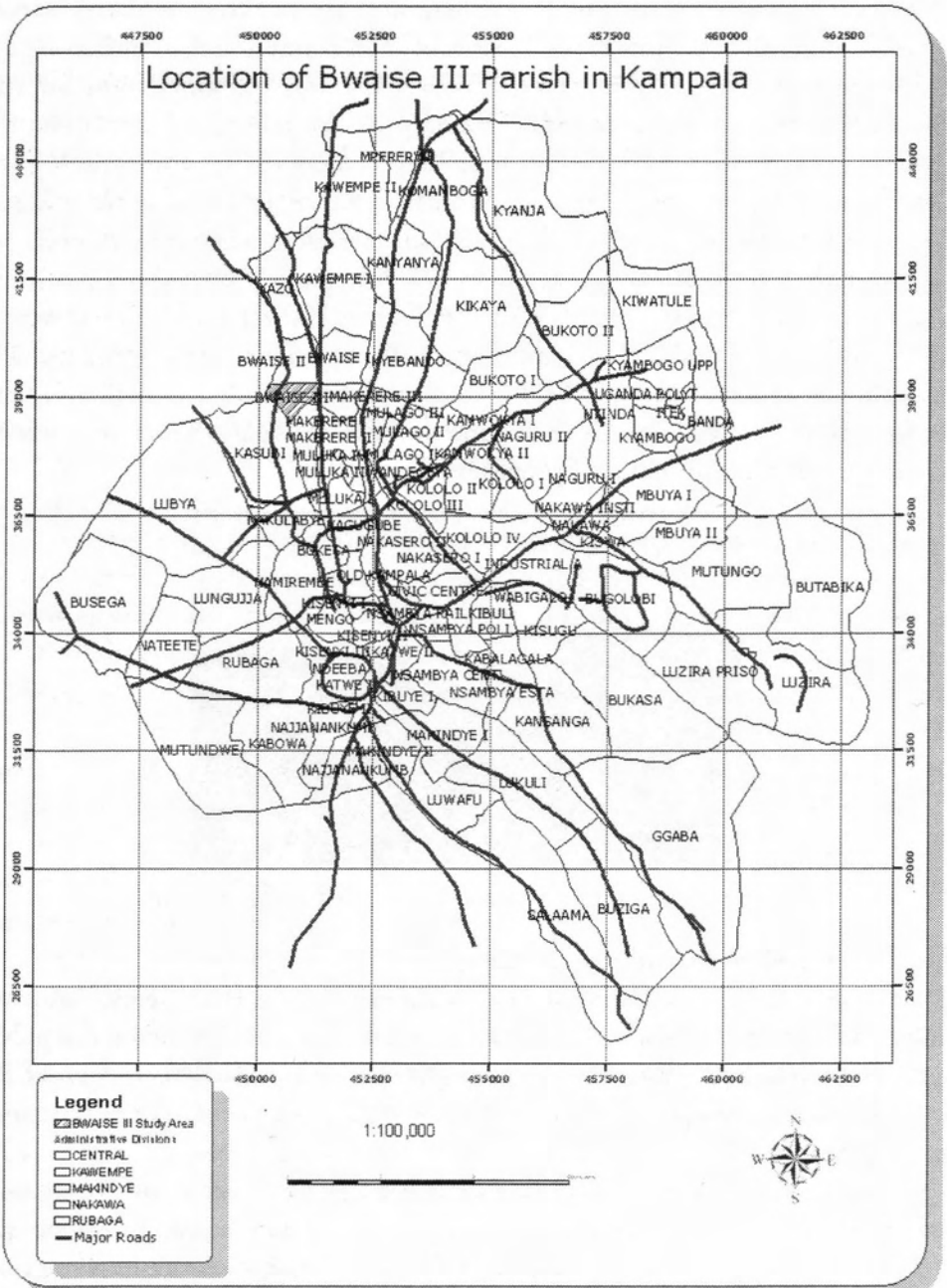
Bwaise III is located in the southern part of Kawempe Division near one of the busiest inlet/outlet of Kampala city's road network to the north. It is just about 5 km from the city center along Bombo road lying in a wide valley between Makerere hill and Kazo hill, through which Nsooba river flows to Lubugi swamp in the west of the city. The study area has an areal extent of 57 hectares. According to the 1991 populations and housing census, Bwaise III had a population of 7,321. But the population in this area fluctuates from time to time (Plan International 1996). The population had increased to 9,913 at a growth rate of 7.1% per annum (Plan International 1996). It also states that most residents are fairly young population with 29% aged between 18-23 years, 12% between 24-28 and 14% between 29-33% of age.

In terms of housing, the study area generally has poor housing dominated by single room rental tenements, which are represented by 51.9% varying in sizes while, 24.2% of the dwelling units are temporary in nature. Crowding of households is evident as indicated by the household sizes that range from 1 to 4 represented by 64.6%, while 35.4% have 4 or more people. The layout of settlements displays a high-density area with crowded houses built indiscriminately with no regard to existing regulations and standards.

The social economic bases of the population in Bwaise III involve various economic activities including retail shops, food vending/markets, metal carpentry, farming and mechanic workshops. About 24.7% of the people undertake their work at home/residence since the area is also a commercial center. This is important because the study area is both a work and a home place thus representing the work and home environment. This represents the various reproduction processes of the community. Because of its double role, the area has various activities including

*Solid Waste Management and Environmental Quality Provision in  
Unplanned Settlements of Kampala, Uganda*

markets, workshops, retail shops and other income generating activities in the homes of some residents. Other activities include agriculture mainly in tradable crops like yams and sugarcane, which are sold in both day and evening markets.



## ***Solid Waste Management Provision***

The only means of provision is by a skip (*container for collection and transportation of wastes*), which is provided by the municipal authority. The skip has a capacity of 14 m<sup>3</sup> of garbage located near a market at the northern edge of the parish. But this is very inadequate given the generation rate and the population served in this community. The frequency of its collection is important in indicating the modes of provision. The time taken to collect the only container from the area zone is two to three weeks yet filling the skip would only take 3 days given the generation rate in the area. This leads to spilling as shown in the photograph, given the overwhelming rate of generation. As a consequence, litter and indiscriminate dumping of wastes has resulted, thereby posing serious environmental threats of the neighborhood. Rotting garbage does not only give off obnoxious gases, but it also pollutes the environmental elements such as air, water and soils as well as destroys the aesthetics of the neighborhood. The relations surrounding the skip indicate that it is considered to belong to the municipality and since people have no control for its regulation, their attitude towards its use also presents problems to the operation of this mode of provision.



*An overflowing garbage-container provided in the study area*

## **Solid Waste Management Provisioning**

Solid waste management is ideally a responsibility of the municipality, which is mandated to collect all garbage and dispose it off from the city. This is the public provision mode but as noted earlier, it is grossly inadequate. This section of the paper examines the experiences of solid waste management provision by the urban authority.

With a population of 9,913, there is a high rate of solid wastes generation. According to Plan International (1996), it was calculated that the generation rate per capita is 0.69 kg for households and 0.21 kg for commercial undertakings per



day. The types of wastes generated by weight were found to be 89% decomposing, 0.4% metal, 2% polythene, 1.1% wood wastes and 7.4% others. The study revealed that 90% of the respondents generate decomposing wastes mainly from food wastes. This is because the area is of residential though mixed with commercial uses.

As a primary means of disposal, storage is an important component of solid waste management, at the point of generation. Storage of wastes in the area was found to be poor. The survey revealed that 21% used old containers, 32% sacks, 28.5% open space (later burnt or collected for final disposal), 30% dustbins, 7.7% Foundation for African Child Support (FACS) containers, while 5.5% used any other means. These storage methods were found not to deter scattering of wastes all over the neighborhood and are not scavenger free. The different modes of storage show the political economy in which this utility is provided. It is not a priority for people to get themselves storage bins that are adequate in terms of deterring scavengers but it is also due to the fact that the people are poor. Since they have other pressing needs, allocation of resources at household level for solid waste gives priority to other needs. Thus storage is done in sacks, old tins and in open space which is also limited. This has become a popular mode of provisioning for garbage storage.

At the community level, disposal of wastes would ideally be beyond it. But this is not the case as the survey established that many people still dispose of wastes within the neighborhood. Provision by the garbage skip is to 49.5%, 12.8% of the respondents use open space around their houses, 7.2% pits, 3.3% use burning, while 38% any other means. This is a burden and a source of problems to the community. Further still, these methods of disposal explain the poor environmental quality in the area. This is indicated by the fact that open space is still a means of disposal even when there is high density of population. This is because the prevailing solid waste management modes of provisioning do not only indicate efforts of the individuals or popular masses but also greatly influence the nature of environmental quality in the area.

Table 1 shows the methods of disposal in relation to the ranking of environmental quality. It can be noted that within those who ranked environmental quality as poor, 37.6% use collection containers, 36.7% use open space, while 37.3% burn wastes. These statistics reflect an almost equal proportion to the three main modes of provisioning for disposal of wastes. But the implication is that not all are actually considered poor due to the conditions under which they are used. For the collection container, which was found to be the only one at the time of the survey, its location is relatively far to many households. While for open space and burning modes, the resultant environment of garbage heaps and air quality explain

the poor ranking of the environmental quality. The poor solid waste management practices were also reflected in the rankings on the performance of the solid waste management systems in the area.

**Table 1: Cross tabulations of methods of waste disposal and rank of environmental quality**

Method of disposal	Environmental Quality Ranking					
	Very Good	Good	Fair	Poor	Very poor	Total
Collection container % within ranking		8 8.6%	34 36%	35 37.6%	16 17.2%	93 100%
Open space 8% within ranking		3 10%	11 36.7%	11 36.7%	5 16.7%	30 100%
Pit % within ranking		2 11.8%	4 23.5%	7 41.2%	4 23.5%	17 100%
Burning % within ranking	1 1.2%	3 15.7%	30 36.1%	31 37.3%	8 9.6%	83 100%
FACS % within ranking		1 100%				1 100%
Any other % within ranking		1 11.1%	3 33.3%	4 44.4%	1 11.1%	9 100%
Total %	1 0.4%	28 11.9%	83 35.3%	88 37.4%	35 14.9%	235 100%

In Table 2, it is indicated that 31.9% ranked the systems as poor, 17% as very poor and if combined, 48.9% are of the opinion that the existing system is poor.

**Table 2: Ranking of solid waste management in the area**

Rank of solid waste Conditions	Number of Households	Percentage	Cumulative frequency
Missing values	2	0.9%	0.9%
Good	49	20.9%	21.7%
Fair	64	27.2%	48.9%
Poor	75	31.9%	80.9%
Very poor	40	17%	97.9%
None	5	2.1%	100%
Total	235	100	

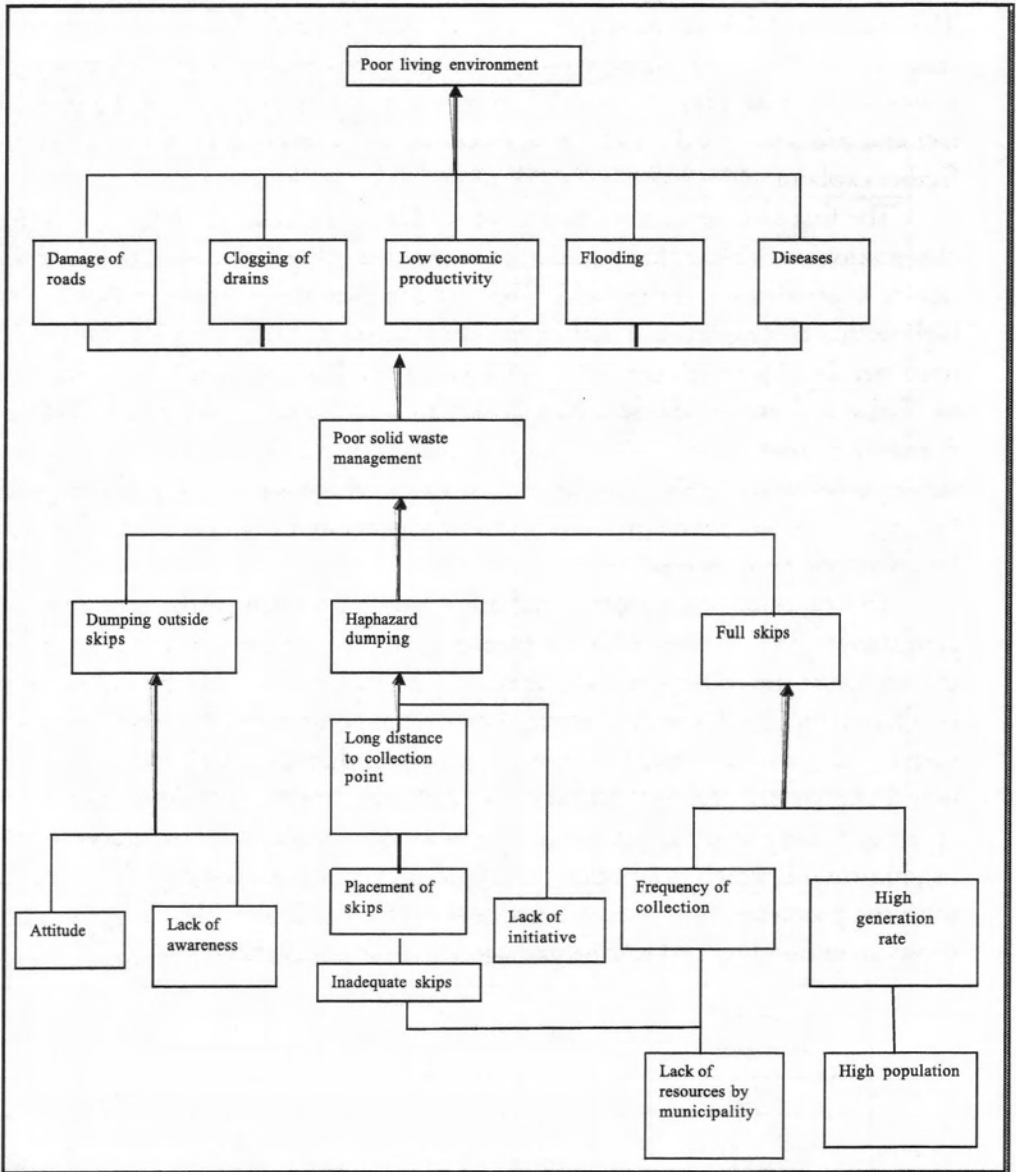
## ***Factors Influencing the Current Solid Waste Management Provisioning***

The existing solid waste management practices depict a deplorable but improving state with FACS and the new public-private partnerships. The current state is a function of interplay of several factors. As shown in Figure 1 of the problem tree and using the solid waste management system at every stage there are several factors explaining the current state of provisioning in the area.

The first issue is generation rate of wastes in the area. From the survey and observations, it is clear that population in the area is high. The average household size is 4 persons per household. This implies that the generation rate is very high with a per capita of 0.069 kg for households and 0.213 kg for commercial units per day. Although generation of wastes would not be a problem, it becomes so if the means for storage, transportation and disposal are insufficient and therefore overwhelmed. With only one collection container as per the time of survey, collection of the container once in two or three weeks, the generation rate becomes a serious problem. More wastes are generated than the available means for collection and disposal.

The types of wastes generated are a major problem in the area too. The generated wastes are mostly decomposing wastes, which are bulky and a problem for storage at the collection and transportation stages. They take big volumes but smaller quantities. If the distance to the disposal point is far, then the problem of carrying the wastes emanates. It was established that 20,9% of the respondents found the service too far and 60.8% lack storage containers. This explains the continued tipping of wastes in drains and any available open spaces of the neighborhood, which is a popular mode of provisioning. However this does not solve the problems, for the environment so created is deplorable. Clogged drains, subsequent flooding and rotting garbage are common in these areas.

*Figure 1 showing the problem tree for solid waste management issues in the community*



Attitude also influences the current state of solid waste management systems. It was established that many people in the neighborhood consider themselves as simply temporary tenants. This attitude drives them into acts like tipping anywhere, non-participation in community efforts because they hope to move away from

the neighborhood. This also exemplifies the relations of people within the area particularly where they do not seem to bother since they are 'temporary' tenants who would move any time. It was reported that it becomes difficult to mobilize such people to clean the environment. This factor is important in the explanation of the continued tipping of wastes in drains throughout the neighborhood. This dumping in drains, open-spaces and by the roadside are popular modes of provisioning in the area especially with hope that the flowing wastewater in drains would carry away the wastes.

On the institutional side, the problems of solid waste management are rooted in several factors. Service provision is very inadequate as seen with the only one skip for collection of garbage in the whole parish of such a population. This however is explained by deficient financial resources, break down of trucks and lack of replacement of skips. In fact KCC is overwhelmed by the rate of growth of settlements as explained by the divisional engineer. Provision is therefore inadequate and it explains why community based mode have emerged.

## *Impact of Provisioning Modes on the Environmental Quality*

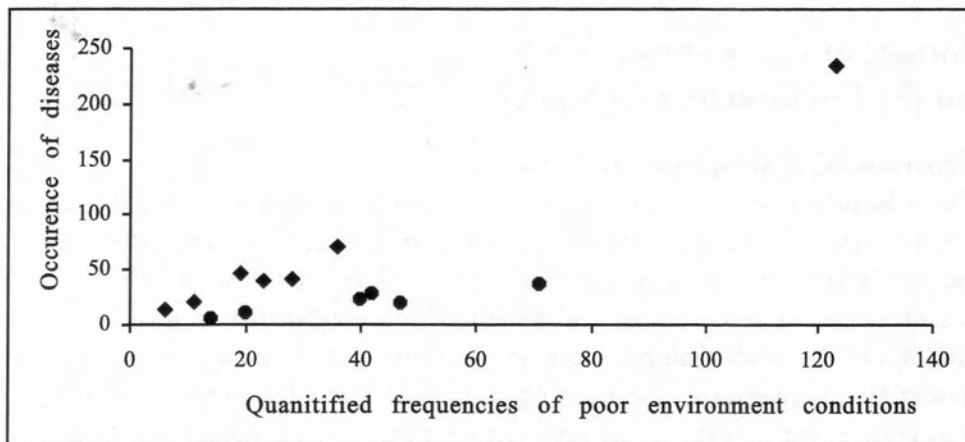
### **Provisioning of solid waste and health**

Since health is an indicator of the environment in which people live, it was undertaken to investigate environmental quality using illnesses, which have a relationship with the environmental quality. The relationship between solid waste modes of provisioning and health is well established as revealed by the findings of the study. This relationship is examined by the data analysis to see the association between the provisioning and health variables. From the findings, it was established that the mean expenditure on health per month per household was 22,655 Ugandan shillings (about \$18). This indicates a high rate of morbidity and a burden because the study area population is categorized in the ranks of urban poor. In Table 3, the statistical analysis of correlation between the variables indicates associations between prevalent diseases and expenditure on health and poor solid waste modes of provisioning. A strong positive correlation exists between methods of disposal and expenditure on disease suffered in the three months at the time of the survey by 0.850. Expenditure on health is also influenced by method of disposal as indicated by a correlation of 0.773. Provisioning modes have exposed people to disease agents and increased risks of infection.

**Table 3: Correlation matrix of selected solid waste practice and other variables**

	Method of	Rank of solid waste practices	Storage of garbage
Common prevalent diseases	0,130	0.157	0.192
Visited hospital in last 3 months	0.210	0.181	0.202
Diseases suffered	0.264	0.327	0.332
Expenditure on disease	0.850	0.764	0.815
Expenditure on health	0.773	0.722	0.743
Rent paid	0.687	0.575	0.635
Condition of dwelling	0.231	0.194	0.301
Poor environment affect work	0,172	0.234	0.232

**Chart 1 showing scatter graph for poor environment and occurrence of diseases**



Analyzed data as shown by the chart and the table above indicate a clear relationship between environmental quality and health of the community in the study area. Data on disease occurrence by subdivision and ranking of the environmental quality revealed a string correlation between the variables with  $r$  as 0.937 at a statistical significance of 0.006. This statistic further explains the influence of modes of provisioning and the subsequent environmental quality on health.

### **Linkage between poor solid waste management practices and economic productivity**

The economic base of any urban system, in which a neighborhood is a sub component, is determined by the economic well being of the households. In a largely informal economic subsystem of Bwaise, 24.7% of the households carry out their activities for livelihood at home or in the home area. This implies that the environment in such neighborhoods would affect the activities both as a resource and constraint to such activities. The economic means of survival in the area include housing, trade and services like hair dressing saloons as well as transport. In the survey, it was established that the existing environment as influenced by the modes of solid waste provisioning is more of a constraint than a resource to the economic activities such as housing in terms of rent as shown in Table 4. This is clearly indicated by a further analysis of the data, which shows associations between the modes of provisioning and the productivity of economic activities. There is a statistical correlation between method of disposal and rent paid, while the correlation between rent paid and storage of wastes is 0.635. These statistics indicate an influence of the solid waste provisioning modes on the rent of housing in the study area, which on average was established as low as 30,000 Uganda shillings (\$24). Other economic activities affected by the poor solid waste management include small-scale roadside vending and home based vending, commercial shops and farming. About 27.2% of the respondents said yes, while 42.1% on whether the poor environment affects work. This is mainly because the roadside vending dominates and since it deals in foodstuffs, the productivity is affected through spoiling the trade goods. Thus solid waste management practices adversely affect economic productivity and cripples the reproduction processes of the communities. But perhaps the most affected is labor in terms of reduction of working hours due to morbidity. Statistics generated from the survey indicates that over 80% of the households experienced disease in the previous three months from the time of the survey. The most common diseases were diseases like malaria and diarrhea affecting both the young ones and the adults. These infections reduced the working hours of adults either as those affected or looking after their sick young ones.

## *Solid Waste Practices and Amenity Destruction*

On the amenity index, the quality of air in the study area was investigated using a surrogate variable of perception of air quality. It was established that 74.9% of the respondents perceived the air in the area as polluted, while 22.1% perceived it as not polluted. About 51.1% of the respondents attributed it to the strong stench arising out of the poorly constructed latrines and rotting garbage while 21.7% attributed it to dust in the area. Further analysis of the data indicated a correlation of 0.285 between methods of solid waste disposal and perceived air pollution. The rank of solid waste practices and the possibility of unsafe water revealed that there is an association between the two variables with a correlation of 0.203. Destruction of vegetation by the practices was observed to be a serious loss of amenities in the area. Land filling for raising the ground before construction or in mitigating floodwaters is a common phenomenon. As access roads are created, (by dumping of wastes) the wetland vegetation is greatly cleared, which is deliberately done. Garbage also affects drainage and it was established that blocking drainage by indiscriminate dumping has led to the deterioration of drainage in the area.

### **Trade-offs of solid waste management practices in Bwaise**

Much of solid waste practices in the neighborhood pose serious environmental problems, it was established that they help in reducing the problem of flooding. People have devised means of fighting flooding by packing garbage in sacks and lay around the houses to protect houses from the water. The respondents describe this as a localized solution to flooding although it only prevents water from entering the houses. This was found to be true only when rains are low or in dry seasons but the situation gets serious when the wet seasons set on. Garbage is also used to raise the ground and clear water logged sites before construction. Residents and developers observe that it is cheaper than earth or hard core and since the generation rate is high, a site of 20 by 30 meters plot is filled within a few months. Likewise certain types of wastes are useful in other activities like animal husbandry and poultry. Banana peelings are separated from other wastes and either solid or given away to farmers for their animals. This is done on small scale because 28.5% of the residents still dump these wastes as observed on garbage dump place. These modes also present alternative modes of provisioning in which people have found partial solutions to the problem of solid wastes.

### **Responses to problems of solid waste management**

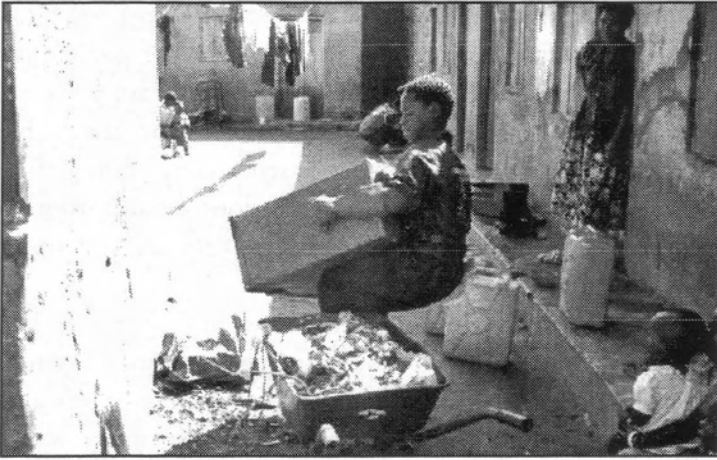
The problems of solid waste management in the study area are responded to with much effort as compared to drainage problems. Burning, community cleaning and



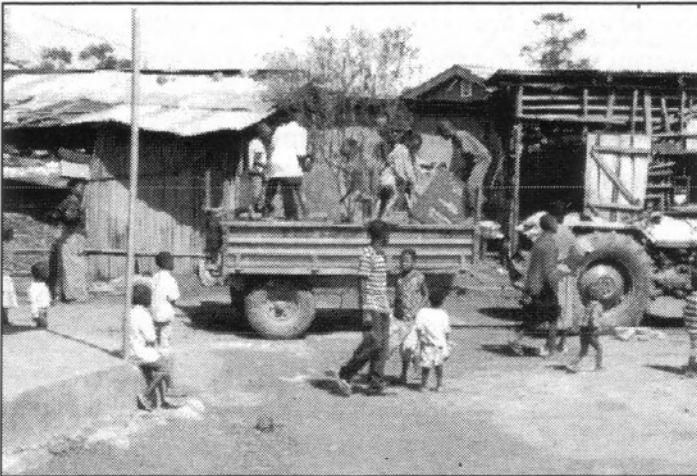
disposal at collection points are done to clear the neighborhood of the unsightly garbage heaps. The major response to the problems of solid wastes includes formation of community based organizations, for educating the people about their environment and engaging them in activities to reduce the problems of solid waste in the area. One of such community based organization is the Foundation for African Child Support (FACS). FACS has done sensitization of the people in the area about the problem of wastes and how they can contribute to solving those problems.

Through support from Plan International and Save the Children Fund, FACS has acquired equipment like wheelbarrows, containers, gumboots, overall wear, gloves, chemicals for fumigation, a fumigation spray-pump, an office and 4 support staff. Containers as shown in photo number 2 are distributed for every six households and emptied every day at a price of 100 Ugandan Shillings (\$ 0.08) per emptying. This means that in six days, a household pays once for emptying the container, thus reducing costs of waste disposition in the community. However, FACS is only undertaking the exercise as a pilot project in only one administrative village of Bugalani within the study area, but has intentions of expanding it into other villages. It was established that 24.7% of the respondents have participated in cleaning the environment, 2.1% have participated in sensitizing other people about the problem and 2.1% contributed money to the cleaning exercise in the area. This shows a recognizable level of community participation and popular mode of provisioning in solving the problem of solid wastes. On response to the problem of solid waste disposal, FACS, in conjunction with KCC, has organized a tractor, which passes through the neighborhood once in two days on which residents and other people tip their wastes as indicated in photo 3.

This is one way through which popular groups have come in to provide this utility to themselves. The locals organize themselves to clean the environment and they have also done so to collect the garbage thereby reducing the expense on groups of households. But the politics of participation is also evident in the popular groups. The long staying residents are not only vigilant in cleaning but they take the responsibility of collecting the households' contribution to the emptying of the container. The relations are somewhat strained in some situations but a greater part have also been good due to the realization that space is so limited for reproduction and disposal of wastes. This presents the mechanisms through which the place is not only important to the residents but it influences their activities given their positions and status in the communities.



**Photograph 2: Community based and managed modes of provisioning**



**Photograph 3: Emerging Public-private initiatives for management of wastes**

In summary the foregoing discussion indicates that the provision for solid waste management is dominated by individual and popular modes of provisioning. The state has partially withdrawn and giving no alternatives, people have formed groups to manage solid wastes in their localities. But the conditions created in the provisioning are not adequate in improving the living environment. The resultant environment has subsequently affected the people, in terms of health, their economic productivity and amenities as well as the environmental quality in general. The statistical analysis of data indicates strong relationships between solid waste management practices and the environmental quality as well as health.

This is a burden to the people of Bwaise (as well as other unplanned settlements) who have to spend highly and yet earn considerably low incomes.

## Conclusions

The analysis of solid waste management modes of provisioning and conditions prevailing reveals that the problem of poor solid wastes management is evident and worsening in unplanned settlements of Kampala, Uganda. This has increased vulnerability of the populations to different risks including flooding, health hazards and poverty. Efforts to solve the problems have largely been an initiative of local communities. This has been done through popular modes of provisioning within the community. It is also observed that the problem of waste accumulation is a serious threat to the health situation of the inhabitants. Mismanaged wastes have become a health hazard, facilitating the spread of diseases and degrading the living environment in neighborhoods. The dumps created at random have also affected the drainage conditions of the area increasing the risks of flooding. However the relations between the state, local government and the people signifies a concerted effort in finding viable solutions to the problem. Since the popular modes of provisioning supercede the provision modes, the existing systems indicate a continuing interface between the state and the popular masses, which is a strong basis for policy formulation in the face of increasing urban environmental problems.

---

## References

- Francis Odemerho and Boyowa Chokor, 1991. An aggregate index of environmental quality: the example of traditional city in Nigeria, *Applied geography*, 11, 35 – 58.
- Jacob Songsore and Gordon McGranahan, 1998. *The Political Economy of Household Environmental management: Gender, Environment and Epidemiology in the Greater Accra Metropolitan Area*, Elsevier Science Ltd, 26, 3, 395 – 412.
- Lwasa Shuaib, 2004. Urban Expansion Processes of Kampala in Uganda: Perspectives on contrasts with cities of developed countries, panel paper, cyber seminar, November 29-December 15, 2004, [www.populationenvironmentresearch.org](http://www.populationenvironmentresearch.org)
- Lwasa Shuaib, 1995. *Housing problems and needs in Wandegaya*, Unpublished dissertation, Makerere University, Uganda.
- Lwasa Shuaib, 1999. *Environmental Crisis in communities of the urban poor in Kampala*; A paper presented in the OSSREA national workshop 27<sup>th</sup> January 1999, Makerere University
- Lwasa Shuaib, 1999. *The Impact of Solid waste management and Drainage on the environmental quality of unplanned settlements: A case study of Bwaise HI*, unpublished dissertation, Makerere University

- Massey D., 1994, *Space, Place and Gender*, Oxford, Blackwell.
- Nyakaana J. B., 1997. Solid Waste management in Kampala, *The East African Geographical Review* volume 19: 1, Uganda Geographical Society and Makerere University, Kampala, Uganda.
- Pathak Bindeshwar, 1999, Sanitation is the key to healthy cities; a profile of Sullbah International, *Journal of Environment and Urbanization*, Vol. 11 No. 1, April 1999.
- Sengendo H., 1995. Urbanization Trend and Environmental Crisis in Uganda; Implications for management and sustainable development, *Eastern and Southern Geographical Journal*, volume 6 No. 1.
- Sengendo, H. 1997. Urbanization, Urban Governance and the environment: Critical conditions for formulating of an environmental strategy for Kampala-Uganda, *Mawazo Journal*, volume 7 No. 2, Makerere University, Kampala, Uganda.
- Syagga P. M, Kiamba J. M, 1992. Housing the urban poor: A case study of Pumwani, Kibera and Dandora Estates in the city of Nairobi, Kenya, *African Urban Quarterly* volume 7, No. 1 and 2 Feb. and May 1992, Nairobi.
- Swyngedouw E. A., 1995, The contradictions of urban water provision, *TWPR*, Vol.17.(4).
- Warde A, 1988. Industrial restructuring, local politics and reproduction of labor power: some theoretical considerations, *Society and Space*, vol 6 (1)
- World Bank, 1992. *World Development Report 1992*, Washington DC, USA
- World Bank, 1994. *Strategies for Managing the Urban Environment: Towards environmental strategies for cities; policy considerations for urban environmental management in developing countries*, Washington DC, USA.
- World Bank, 1994. The human face of the urban environment; A report to the development committee. *Environmentally Sustainable Development Proceedings Series*, No. 5 Washington DC, USA.