Sanitation – a neglected essential service in the unregulated urban expansion of Ashaiman, Ghana

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ABSTRACT: In Ghana, over 70% of urban dwellers do not have private sanitation facilities in their home and rely instead on an informal network of shared toilets. Using results from house surveys, sanitary surveys of toilets and their observed use, this paper explores how the different type of toilets are distributed and utilized in three neighbourhoods of Ashaiman, a rapidly growing city in southern Ghana. The study reveals how and why access to sanitation facilities is influenced by the process of urban development, the distribution of the population and local urban planning policies. Differences in sanitation provision from one area of Ashaiman to another are not limited to the number and location of toilets, but also different levels of service and user fees, that impact on the daily lives of thousands of urban residents. Findings of the study indicate that provision of new sanitation facilities, individual or shared, must consider the motives of implementers, the needs and preferences of the residents and the broader urban context, where patterns of urban development play a critical role.

Conference Theme: Sustainability and urbanism
Keywords: Toilet, Option, Choice, Urban planning, Housing density.

INTRODUCTION

Those living in low income, high density urban areas of sub Saharan Africa have limited, if any, access to individual sanitation. In Ghana, over 70% of urban dwellers rely on shared sanitation facilities (WHO & UNICEF 2012). Independent of their technology, toilet facilities used by more than one household are not recognized as improved by the Joint Monitoring Programme (a global platform managed by UNICEF and WHO). The risk of maintaining a low level of hygiene together with the threat of privacy and security of vulnerable groups are some of the arguments used for classifying shared facilities as unimproved. Nevertheless, providing sanitation facilities in over-crowded, poor urban settlements is a challenge for governments and agencies alike, with technical, economic, social and environmental dimensions. Despite being rated as unimproved by the Joint Monitoring Programme, a shared toilet is often the only alternative for people resorting to using bucket latrines, plastic bags to defecate in and later dispose of, open defecation, or similar unsafe practices. Shared sanitation may provide a solution in a congested urban environment, where individual sanitation remains a technological and physical challenge (WSUP 2011).

This paper is based on a PhD research investigating the relative acceptability of different shared sanitation facilities in three high-density urban areas of Ashaiman (a fast growing city of Ghana) (Mazeau et al. 2011) The definition of sanitation in this paper is limited to the management of human excreta with a focus to the provision and management of toilets. This paper identifies the links between urban development in each area and the type, quantity and use of shared sanitation facilities available to the residents. The extent of sanitation facilities that exist is a consequence of the complex and rapidly changing history of urban development in Ashaiman, as described in the next section. The paper goes on to present the method of data collection, results from the different surveys, and observations of the use and status of sanitation facilities. The last section discusses implications of the findings for implementers of sanitation facilities and urban planners.

BRIEF HISTORY OF ASHAIMAN

Ashaiman is historically a satellite town of Tema (Owusu 1999:244). In the 1950s, Tema, lying 30 km east of Accra, developed as a main industrial port. The land around Tema was bought by the Government from traditional owners, with the Tema Development Corporation (TDC) taking charge for planning the port and the new city. The TDC was a state owned enterprise founded to develop Tema and to implement government housing policies (Arku 2009).

Initially, Ashaiman was seen as a temporary settlement to accommodate workers employed in the construction of Tema, but as the number of migrants increased, the temporary houses became permanent. The officials of Tema were forced to relax housing regulations (Kirchherr 1968) and to accept “unauthorized” settlements. The western part of what became Ashaiman was included in the initial plan of the TDC, so by the 1960s Ashaiman was shaped by two different forms of development:

• The western part of Ashaiman was provided with roads, lighting and public toilets. Housing plots and streets were laid out following a grid pattern.
• The eastern part saw farmers and traditional owners renting out some of their land to migrant workers. Housing construction did not follow any regulations or city plans (Owusu 1999:245), resulting in very dense settlements. About the development of this eastern part of Ashaiman, Peil wrote that:

> It is a notable slum, hidden behind the motorway but detracting from the planned splendor of Tema. From time to time there are plans to replace it with government housing making it another Tema 'community'. So far, government resources have been inadequate to replace a town of the present size and until a decision is finally reached, the unplanned settlement is causing no trouble and can safely be ignored (Peil 1976:164).

In the 1970s and 1980s, the formal development managed by the TDC slowed down as a result of political and economic events at national level. Between 1956 and 1976 the TDC had constructed only 30% of the houses initially planned, and by 1985 only 11 of 19 planned residential communities had been completed (Owusu T. , 1999), causing housing prices to increase significantly in Tema. This led to rapid growth in the whole of Ashaiman, where housing was cheaper. Peil's comment in 1976 about the eastern part of Ashaiman became true for the whole city, as the government focused its investment on central Tema. In describing the growth of Ashaiman between 1950 and 1990, Owusu concluded that:

> Local and national governments did not just turn a blind eye to the developments in the settlement and allow it to gain political legitimation, [sic]….but they created the settlement and, subsequently allowed squatting in it to become widespread (Owusu 1999:247).

The housing and other physical developments of Ashaiman were not only the result of action by the TDC and national government. Major industrial companies investing in Tema decided to build flats for their workers in Ashaiman (Konings 1978), although the extent of construction is probably marginal compared to the current housing stock. Most houses were built by individuals, initially indigenous farmers and the wealthier employees working in Tema. State-owned enterprises like the TDC provided housing within the formal sector for the upper classes. Housing for the lower classes was provided by the informal sector, mostly through self-build (Arku 2009). The traditional leaders and indigenous families also played a key role in the development of Ashaiman.

> Ashaiman falls within the TDC acquisition but the area has been developed and continues to be developed by the chief, elders and developers without seeking any authority from TDC (Kasanga et al. 1996:71).

O'Connor observed that the limited impact of formal town planning in many African cities is:

> influenced to a very large extent by the decisions of a few foreign firms and thousands of local individual families rather than by officials of any town planning department (O'Connor 1983:237).

The development of Ashaiman appears to have followed this approach. Ashaiman's population has grown from 20,000 in 1970 to over 200,000 in 2010 and continues to expand. In 2008, following the national policy of decentralization, Ashaiman became recognized as a municipal assembly, known as AshMA (Ashaiman Municipal Assembly).

THREE PATTERNS OF URBAN DEVELOPMENT IN CENTRAL ASHAIMAN

An aerial image indicates several distinct development patterns in Ashaiman, as shown in Figure 1:

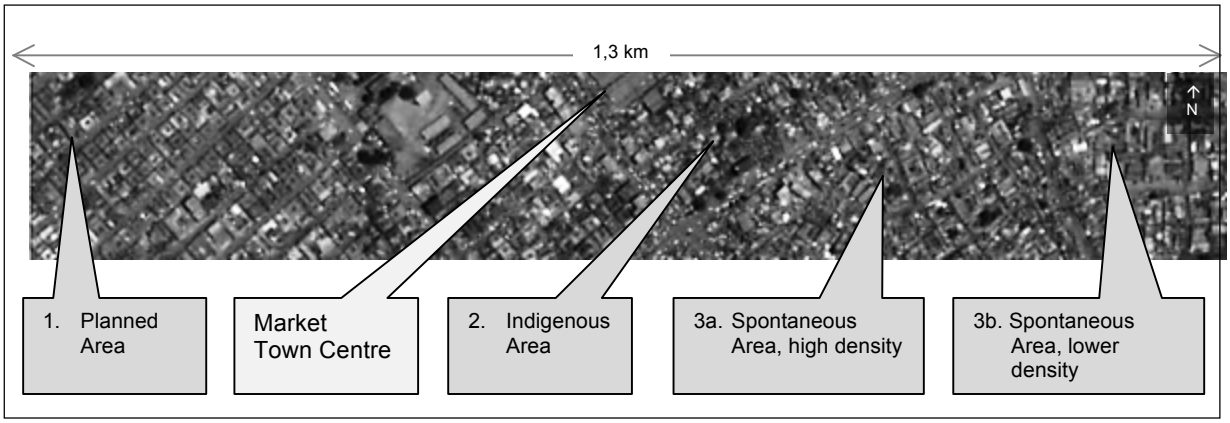


Figure 1: Aerial picture of Ashaiman (Google Earth, 2012)

Three distinctive patterns of urban development, found within the centre of Ashaiman can be described as follows:

1. To the West, the *TDC planned area* is characterized by a grid layout of roads and housing plots.
2. The oldest houses, located in the centre of the town near the market, form the *indigenous area* of Ashaiman. Several extensions to houses and the absence of initial planning have resulted in streets and plots having an irregular pattern, with consequently a very high density of housing.
3. The more recently developed East and North areas, where expansion is still occurring, are the *spontaneous areas*. They are characterized by areas of high-density housing (3a), with density progressively decreasing from the centre towards the edge of Ashaiman (3b).

METHODOLOGY

Surveyed areas

Ashaiman presents several characteristics of sanitation services which are common to many West African towns. There is no established sewerage system and a high percentage of the population does not have access to a household toilet, resorting to using shared facilities or practicing open defecation. Ashaiman also presents a high degree of spatial heterogeneity in relation to its settlement patterns and level of infrastructure.

To aid understanding, definitions of certain terms used in the following sections of this paper are described.

- This study defines a **household** as a collection of people living together, sharing food and recognizing themselves as a unit. The household size can range from one member (for example a migrant worker living away from their family, who remain in their rural home) to 20 members of an extended family living together. Households can have different tenancy status: landlord, relatives of landlord, free renters and tenants (Bertrand 2003, Gough & Yankson 2011).
- A **house unit** is a house occupying a single plot, having for instance one electric meter. A house unit may differ from the notion of family (Ayad et al. 1997) and a house unit can be home to several households.
    - In Ashaiman, a house unit can be a compound house, a self-contained house, a kiosk or a container. A **compound house**, sometimes called a multi-family house, is a dwelling lived in by more than 2 households (in some cases over 20 households).The dwelling is typically built around a central courtyard. A **self-contained house** usually accommodates one family and close relatives only. **Kiosks and containers** are small wooden or metallic structures containing one or two rooms, often used as a shop during the day and slept in at night by an individual or small family.

Table 1 describes aspects of the three areas surveyed for the study, focusing on the urban pattern and housing type. The surveyed areas represent the different sectors seen in **Error! Reference source not found.**.

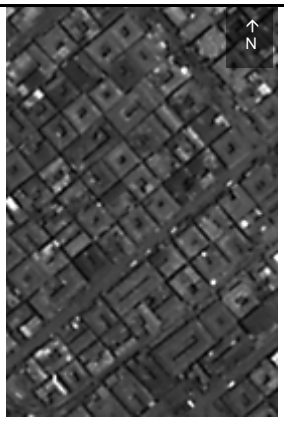
	Planned area Nii	**Indigenous area Oko**	**Spontaneous area Amui**
Location in Ashaiman	Western side	Centre of city	Eastern side and outskirts
Google Earth capture (400 meters from the ground)			
Land ownership	TDC-owned land	Customary (traditional) land	Customary land
Urban pattern	Grid layout	No clear pattern	Both unplanned and grid layout
Quality of road	Paved roads (tarmac)	Unpaved & paved roads	Unpaved road
Dominant housing	Compound houses	Compound houses and kiosks	Heterogeneous (compound houses, self-contained houses and kiosks)

Table 1: Urban characteristics of the three studied areas

DATA COLLECTION METHOD

THE THREE AREAS SELECTED FOR THE STUDY EACH COMPRISED APPROXIMATELY 100 HOUSE UNITS, REPRESENTING A TOTAL OF 320 UNITS THAT HOUSE OVER 6,000 RESIDENTS. ALL 320 HOUSE UNITS WERE SURVEYED; IN EACH HOUSE UNIT AN ADULT ANSWERED 20 QUESTIONS DESCRIBING THE DEMOGRAPHIC CHARACTERISTICS OF THE RESIDENTS, THE TOILET FACILITIES WITHIN THE HOUSING PLOT, AND THE TOILET FACILITIES USED OUTSIDE THE HOUSING PLOT.

Based on the total number of toilet facilities identified during the house survey, a smaller number of shared toilet blocks were surveyed in more detail within each of the three areas. Information about the condition of these facilities was gathered from structured observations and discussions with the caretakers.

Stakeholder interviews and secondary data from government reports and policy were also gathered, to provide background information on recent changes in Ashaiman, from a local perspective.

RESULTS

Error! Reference source not found. shows the results of survey data collected from all houses located in the three neighbourhoods.

Type of area Name of area		Planned NII	Indigenous OKO	Spontaneous AMUI
House unit		115	96	109
Household		860	679	693
Estimated population		2218	1893	2188
Estimated area (ha)		3,6	2,8	5,7
Estimated density (pop/ ha)		620	680	380
Type of housing	Compound	92%	74%	72%
	Single	7%	6%	12%
	Kiosk/ container	-	18%	14%
Tenancy status of house unit occupiers	Landlord only	5%	4%	22%
	Tenant only	46%	54%	29%
	Landlord & tenant	49%	41%	49%
Monthly rent per room (1cedi= 0.59 US$)	Concrete room	20 cedis	20 cedis	25 cedis
	Wooden structure		10 cedis	

Table 2 Demographic characteristics of the three studied neighbourhoods

Amui is a much less densely populated area than Oko and Nii. Despite having different histories of urban expansion, Nii and Oko have a similarly high population density and a similar variation in tenancy. In Amui, the proportion of houses occupied by landlords only is greater than in Oko and Nii. Based on discussions with residents, monthly room rental is significantly more expensive in Amui than in the two other areas.

House toilet

The survey indicates that on average across the three areas, 11% of house units have a functional toilet on their premises, referred to as a "house toilet". A house toilet is not necessarily the same as a family toilet, as the house may be occupied by more than one family. The arrangement differs between the three study areas, as shown in Figure 2.

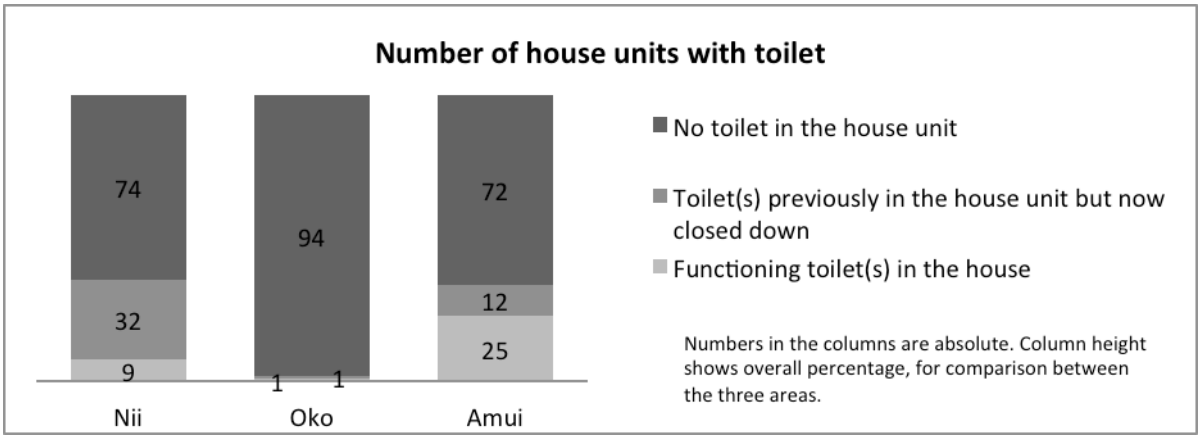


Figure 1: Provision of house toilets in the three studied areas

In Nii, the planned area, 36% of house units previously had a toilet. Most of those toilets were built at the time a compound house was constructed. In a compound house, 2 smaller rooms were typically planned to be a bathroom and toilet, with the majority of toilets comprising of a bucket toilet (called 'pan latrines' in Ghana). Nowadays, only 8% of house units in Nii have a toilet. This can be explained by the following:

- Pan latrines have been "actively discouraged" in Ghana since 2010, in line with the National Environmental Sanitation Policy (GoG Government of Ghana 2010:36). Such toilets are officially no longer in use in Ashaiman.
- Before being "discouraged", some pan latrines had already been closed down, as their management was proving to be problematic for the house owner. Compound houses, initially inhabited by a single family and their close relatives, came under pressure from the rapidly growing population. As compound houses became multi-family dwellings (Gough & Yankson, 2011), the opportunity grew for owners to reduce their living costs by renting out additional rooms to accommodate more inhabitants. This increased the challenges of managing the shared toilet facility.
- None of the houses surveyed had recently built a toilet. Inversely, a number of closed-down toilets have been converted: into a shower (3 cases), a rentable room (6 cases) or storage area (8 cases). Most are left empty (17 cases).

In Amui, out of the 12 houses where toilets were closed down, only four of them had previously been pan latrines, the others having been VIP (Ventilated Improved Pit) toilets. The South-Eastern part of Amui regularly floods and inhabitants faced problems as their on-site latrines became inundated with flood water. In Amui, 23% of houses now have a functional toilet on their premises. Most of these houses are located to the East, where there is more space available on which to build a toilet and owners of the typically larger plots of land, being in theory wealthier, are more able to afford the investment costs.

In the indigenous area of Oko, most houses have never had a toilet. The houses are some of the oldest in Ashaiman and as in the past their inhabitants practiced open defecation in a nearby field, no room was dedicated to be a toilet. The pace of urban expansion, plus house extensions increasing pressure on the number of rooms for rent, leaves little space for building toilets or bathrooms. Some of the men consulted in the study explained that until recently they would practise open defecation, as the surrounding areas were not built-up. Today however they don't have the space for such practice and instead use the shared toilet facilities in Oko.

Type of shared facilities found in Ashaiman

The term 'shared toilet' is generally understood to refer to a large public toilet block. Based on the different management models, price per use, design and level of formalization, shared toilets can exist in a variety of forms (Schaub-Jones et al. 2006). In the case of Ashaiman, a simplified typology of all types of toilet that exist can be identified, as in Table 3.

Type of facility	Description (applied to the local context of Ashaiman)
Household toilet	Toilet serving a single household and located in the house. The only type that is not shared.
House unit toilet	Toilet serving a number of households living in the same house unit. Arrangements are made for cleaning the toilet and desludging (emptying) it.
Neighbour toilet	Toilet owned by an individual, often with one or two cubicles, available for use by known neighbours. Price per use varies from 15 to 30 pesewas.* Most of these facilities are not declared to the Municipality, so the owner does not pay taxes.
Commercial toilet	Toilet blocks (privately financed) typically comprising more than 10 cubicles, with segregation between men and women. The operator pays taxes to AshMA and the price per use varies from 10 to 35 pesewas.*
AshMA toilet	Toilet block built by the Government and franchised to an individual or group of individuals to operate. The toilet blocks are segregated male/female and typically comprise more than 10 cubicles, with the price per use averaging out at 10 pesewas.*
* 10 pesewas = 0.06 US$. 1 Ghana Cedi = 100 pesewas.	

Table 3: Type of management of shared toilets in Ashaiman (Mazeau et al. 2011)

Distribution of shared toilets in the study areas

Identifying the actual distribution of a range of available toilets can improve understanding of the influence of both urban planning and residents' preferences in the use of specific models of shared toilets. In the case of Ashaiman, the number of shared toilet blocks and the total number of stances (or seats) available are indicated for each area of the study in Figure 3.

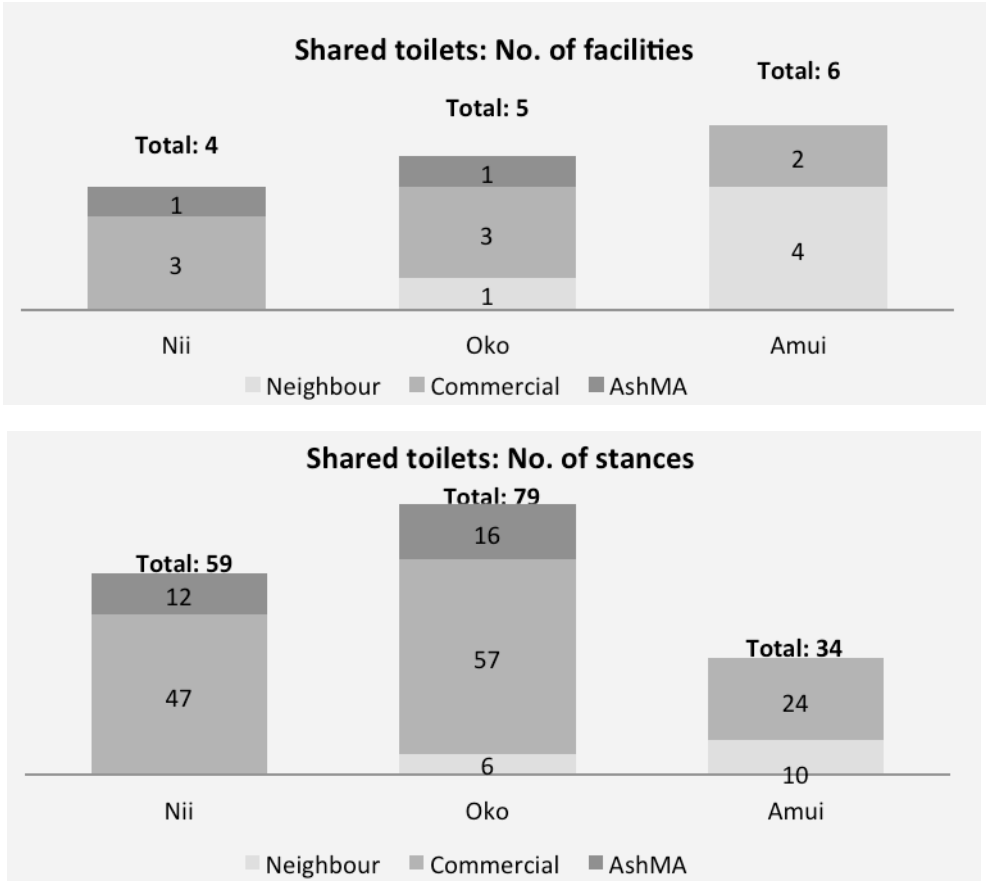


Figure 2: Number of shared toilets and stances in the three study areas

The AshMA toilets are owned by the Municipality and operated under delegated management. Most were built during the 1970s, targeting commercial areas (rather than residential ones). They are often badly managed, but in some areas remain the closest and the cheapest option. Amui did not benefit from the construction of such toilets, and here the cheapest available toilet blocks (operated commercially and by neighbours) typically charge 20 pesewas per use, or double that of an AshMA toilet block.

Conversely, the majority of neighbour and commercial toilets have been built in the four last years. Except for one toilet block built with the support of an NGO, these toilet blocks are the result of private initiatives. This reveals a growing responsiveness to the demand for sanitation facilities, although that demand is not responded to in the same way across the three study areas.

In the less densely populated areas of Amui, landlords can use part of their land to build a toilet, typically of one or two cubicles. Some owners of these private toilets have decided to make them available to local residents as a way to generate extra income. This model is less applicable however in areas where land is constrained.

In the planned area of Nii, issues of housing density, lack of available land and difficult access for trucks to empty the toilets makes construction of larger shared facilities problematic. To build and operate a public toilet facility in such areas, the potential investor first needs to own land, which may require political connections. They may also need to clear a plot (destroy an old house) or convert an existing house into a toilet block, either action incurring additional costs. To support such an investment, the toilet block must contain a sufficient number of stances to make it financially viable.

All shared toilets located in the planned and indigenous areas (Nii and Oko) are sited adjacent to the main roads, requiring residents to walk to the edge of their neighbourhood to use them. The two largest toilet blocks in the study area are located close to the market, targeting market users as their main customers.

User preferences

Based on results of the house survey, over 90% of the population in Nii and Oko, and 75% in Amui, do not have a toilet within their home, making shared facilities the dominant sanitation service used by residents. Distance to the toilet has been found in the study to be only one determinant of preference in Ashaiman, but the one most influenced by past urban planning decisions. Although users may prefer to use a facility that is close by, they also express concern at the management arrangements which influence aspects of price, cleanliness and the level of privacy. Factors of safety are also influenced by planning decisions where, for example, bad lighting in and around toilet blocks discourages some customers using them when they are located in a badly-lit part of the neighbourhood.

Some residents of Ashaiman who do not have access to a house toilet but who choose not to make use of, or cannot access, a shared toilet block, rely on other options. Figure 3 shows fewer toilet stances in Amui, despite a greater availability of space and land. This can be explained by the fact that a large number of residents resort to open defecation in fields located at a reasonable walking distance. Consultation with residents identified some who openly admit to preferring open defecation to using shared toilets that they consider to be dirty and smelly.

A further finding from group consultations is that half of the consulted users rely on more than one facility. This implies that users may not be satisfied with having a single option. Research is on-going to identify the determinants of such acceptability and the influence of their relative importance, in relation to user behaviour and the range of options available.

PLANNING WEAKNESSES AND ITS CONSEQUENCES

Ghana's Environmental Sanitation Policy (GoG, 2010) contains "implementation arrangements" for sanitation provision that clearly define the roles of all stakeholders, from the national level to the individual. National and municipal-level strategies, action plans and coordination bodies are intended to implement the policy, which assigns the various roles of sanitation infrastructure and service provision to the Municipality, sub-levels of municipal authority and individuals. Despite this, AshMA lacks strong data on which it's planning decisions and actions are based. This results in steps taken to actualize policy commitments remaining weak and in many instances inappropriate or unrealistic. This in turn stems from a lack of sufficient capacity (financial resources, technical knowledge and political influence) at the municipal level, exacerbated by a lack of effective monitoring arrangements to ensure stakeholders are held accountable for their respective roles.

In a country with no Urban Development Strategy or Urban Development Policy (Owusu 2010), it is not surprising that there is no platform for dialogue, either formal or informal, to mobilize the stakeholders within AshMA to take responsibility for sanitation provision at a municipality-wide scale. The resulting general perception, from both residents and outsiders, is that little is being done to formally address the poor environment health status of Ashaiman. Where gaps in service provision remain, a range of new stakeholders are coming-in to fill those gaps at a more local level. Individuals and private operators may provide toilet facilities at a range of different scales, but as their activities remain largely unregulated this typically results in higher charges to users (Bertrand 2002, Owusu 2010). The type of toilet available to residents is influenced by the pattern of urban development as well as the management model. The management model of the facility can be decided by the owner, whose decision is affected by local regulation, or the lack of it.

The weak planning and regulatory environment has led to poor sanitation provision over an extended period of time. This has created a situation where users, as well as responsible institutions, give less attention to the needs of providing adequate service coverage and quality, to achieve effective sanitation infrastructure and service provision.

CONCLUSIONS

Improvements in sanitation should be viewed and addressed as not only being in the hands of wastewater engineers, but of direct concern also to urban planners. The actual quality and quantity of toilets facilities has adverse impacts on the health and hygiene status of the population. But the inadequate sanitation service has also impact on the reputation of Ashaiman and on its ability to attract economic investment. Conversely, the extent of urban planning influences the range of options available for the provision of toilet facilities and the effective management of human waste.

The current status of location, access and management models of both individual and shared toilet facilities in Ashaiman results from a range of government and private sector initiatives in response to the level of (or lack of) regulated urban planning. As observed in Uganda, *"sanitation is spatially defined by [the] nature of urban development"* (Letema et al. 2010:156). This is also true in the changing context of Ashaiman, where a wider range of actors is now present than in the past. Today, the provision of toilet facilities is primarily in the hands of individuals rather than government institutions. Individuals however do not act homogenously, but focus on where implementation is technically feasible and likely to serve their interests most effectively.

In Ashaiman, sanitation providers are captive to the complex and changing urban environment, both physically and politically. They face difficulties of land access, support for investment and recognition. Despite this, landlords and entrepreneurs are the dominant providers of sanitation facilities. The general weak capacity of the different agencies, together with the absence of prioritized actions and decision-making, have resulted in low implementation of sanitation facilities and poor regulation of the services provided by private entrepreneurs. This absence of regulatory oversight leads to costly and/or unhygienic services. A gap therefore remains between grass-roots initiatives, national and municipal planning, resulting in inadequate provision on the ground.

Ashaiman shows how options available to poor urban residents can differ from one area to another, provide a range of service levels and yet overall remain unsatisfactory. In densely built-up areas, the scope for individual initiative is reduced with action primarily reserved for wealthy individuals and land owners. The balance between land ownership, street patterns, forms of housing, the potential customer-base for toilet facilities and user preferences are expressed differently in the three areas within the study. The heterogeneity of Ashaiman should be a reminder to policy makers, planners and practitioners alike that sanitation solutions have to be considered

not only in relation to the needs of the city or neighbourhood, but also with good understanding and consideration of the technical and socio-economic issues at the micro-level, such as affects a street or house unit.

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