Research Paper

What has poverty got to do with it? Analysis of household access to improved sanitation in Ghana

Simon Mariwah, Joshua Amo-Adjei and Prisca Anima

ABSTRACT

This paper investigates antecedents to demand for household sanitation in Ghana. We employed a sequential, mixed-method approach, relying on the 2011 Ghana Multiple Indicator Cluster Survey (MICS) and primary qualitative data generated from individual and group interviews. The aim was to ascertain the role of household assets (measured by household wealth) in access to improved sanitation in Ghana. The study found that although wealth positively influenced household ownership of improved sanitation, the effect is strongly noticed only at the pinnacle of wealth quintiles (the richest households). From the qualitative data, we find that, beyond poverty, a mix of cultural, social, political and economic nuances influenced and somehow perpetuate low access to improved sanitation in Ghanaian households. We therefore surmise that means targeting of the poor and application of social marketing of sanitation in both rural and urban areas can help trigger awareness and demand for improved sanitation in Ghana.

Key words | Ghana, household, improved sanitation, poverty

Simon Mariwah
Prisca Anima
Department of Geography and Regional Planning,
University of Cape Coast,
Cape Coast,
Ghana

Joshua Amo-Adjei (corresponding author)
African Population and Health Research Center,
Manga Close, P.O. Box 10787-00100,
Nairobi,
Kenya
E-mail: *joshua.amo-adjei@ucc.edu.gh*

INTRODUCTION

The just phased out Millennium Development Goal (MDG) 7, Target 10 aimed to 'halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation.' However, current trends clearly show that some developing countries have missed the target. While progress towards MDG 7 was appreciable, a twin component of Target 10, that is sanitation, still lagged considerably behind many other MDG targets. The 'sanitation gap' was estimated at more than three times that of water supply in developing countries. For example, about 2.5 billion people, largely in developing countries, lack improved sanitation facilities, compared with only 780 million people who use unsafe drinking water sources (World Health Organisation (WHO) and United Nations Children's Fund (UNICEF) 2012).

Although Ghana achieved the MDG target of improved water supply (77%), it could not achieve the sanitation target of 54% by September 2015. The national coverage for improved sanitation was only 13% in 2011 (World Health Organisation (WHO) 2013), reflecting a marginal increase from 6% in 1990. The results show that about 19.2 million people did not have access to improved sanitation. To achieve the sanitation-related MDGs, about 1.2 million ought to have had access to improved sanitation annually between 2008 and 2015. In other words, adequate sanitation was the most neglected of all the MDG targets (Cumming 2009; Biswas 2010).

While some researchers (Agbola 1993; Kendie 1999) have blamed low sanitation coverage on poor attitudes, others (e.g., Porter 1997; Kumuyi 1999; Water and Sanitation Program (WSP) 2006; Rodgers *et al.* 2007; Cavill *et al.* 2016) cite poverty and inadequate funding as the cause. For example, whereas the Water and Sanitation Program (WSP) (2006) asserts that poor access to sanitation services

is a basic indicator of poverty, Kendie (1999) argues that inadequate funding is nothing more than a convenient excuse used by authorities and individuals to justify low investment in the provision of sanitation services.

The sequel to the MDGs, the succeeding global development paradigm, the Sustainable Development Goals, sought to achieve access to adequate and equitable sanitation and end open defecation by 2030, taking particular cognisance of the needs of women, girls and vulnerable populations. At the current rate of improved sanitation penetration in Ghana and other developing countries in the sub-Saharan region, much more needs to be done if these ambitious goals are to be achieved in the next 15 years. Part of the agenda to arrive at these milestones is to generate empirical evidence that will help direct the attention of policymakers to areas of need.

This study is one of the several kinds required for proper understanding of improved sanitation issues in the country. It uses the asset-based approach (measured by wealth quintiles) to investigate access to improved sanitation in Ghanaian households. The asset-based approach is deemed relevant, given that available evidence shows that there are millions of individuals without access to basic sanitation but who can count a number of complex household assets/gadgets, including mobile phones and electronic gadgets (television, home theatres, fridges, etc.) (Hutchings *et al.* 2012). For instance, a recent United Nations report (United Nations Development Programme 2014) noted that more Africans now have a cell phone than have a toilet, indicating a failure to provide the most basic protection. Therefore, the results of this study will advance our understanding of the 'best' approach to increasing sanitation coverage in Ghana. Already, the Government of Ghana, through the Ministry of Local Government and Rural Development, has abolished subsidies for the construction of household toilet facilities, and has thus officially adopted the community-led total sanitation (CLTS) approach, where households are sensitised to provide their own toilets in order to achieve sustained sanitation demand and behaviour change. Thus, if it proves that poverty is the major factor, then targeted funding of sanitation provision through subsidies will be imperative. However, if it is a matter of priority, then the scaling up of the CLTS in both rural and urban areas will be more appropriate.

CONCEPTUAL CONTEXT

In today's inter-connected world, global and local processes may intersect in complex ways to enable or constrain people's agency as they seek to balance multiple household needs in often less than ideal circumstances (Farmer 2004; Hampshire *et al.* 2009). Hence, the demand for improved sanitation for most households may not be high until other needs such as housing, water, farming and schooling are met. As a result, Wijk-Sijbesma (1998) indicates that there is a high correlation between latrine ownership and higher socioeconomic status.

Several authors, using varied approaches, have explored the complexities of the factors affecting sanitation adoption in developing countries. For example, through a political ecology approach, O'Reilly & Louis (2014) used the metaphor of the 'toilet tripod' to identify the multi-scalar political, economic and environmental factors influencing sanitation adoption in rural India. They found that elements of successful sanitation adoption depended on three factors, referred to as the toilet tripod: political will on the part of both government and non-governmental organisations (NGOs) over the long term; proximate social pressure, implying person-to-person contact between inhabitants and toilets; and political ecology, referring to assured access to water, compatible soil type and changing land use.

Jenkins & Curtis (2005), on the other hand, found in rural Benin that lack of desire for a toilet facility, coupled with the cost, lack of available credit, design, soil type and family problems, was the primary reason people chose not to build their own toilet facility. In a later study in Ghana, Jenkins & Scott (2007) developed a behaviour decision model based on preference–intention–choice stages of the individual decision to build a toilet facility. The authors recognised that environmental constraints such as soil type, space limits and the height of the water table were important in the adoption of improved sanitation facilities.

Jewitt (2011) also identified both spatial and temporal dimensions of cultural and environmental factors such as taboos and ambivalence surrounding human excrements, enhanced status of individuals, which constrain intervention efforts for addressing water and sanitation challenges in developing countries. Dittmer (2009) has also found that certain people in Northern Ghana still use open defecation because they believe that 'public toilets are surrounded by

evil spirits and therefore should be avoided'. Others believe that 'latrine facility use will strip the users of their magical powers'. Among the Idoma people in Nigeria, open defecation is culturally encouraged because it is a taboo to defecate in a building or super structure; hence, many older people refuse to defecate in any sort of enclosed area (Dittmer 2009).

In trying to deal with cultural and socioeconomic barriers, and to increase access to sanitation facilities, governments and NGOs in development countries, particularly Ghana, have invested so much in the provision of public and communal toilet facilities. As a result, in Ghana, by the mid-1980s, there were 784 public toilets in Accra and Kumasi alone, which were managed and maintained by their respective metropolitan or district councils (Ayee & Crook 2003). These were in addition to those built by local governments and NGOs, for use for free, in small towns and rural communities. The use of public toilets in Ghana is also carried out in developing countries in Africa, which is a reflection of government policy of being actively involved in the construction, operation and management of public toilets for household use (Jenkins & Scott 2007). This has created the impression among several households that governments or some external agencies are responsible for the provision of sanitation facilities. This has, therefore, led to the construction of few sanitation facilities in Ghana (Ayee & Crook 2003; World Health Organisation (WHO) and United Nations Children's Fund (UNICEF) 2012). Meanwhile, it has become evidently clear that public funding and provision of sanitation are inadequate (Jenkins & Scott 2007). As a result, in recent times, there has been a shift from the centrally planned provision of sanitation infrastructure towards a demand-led approach that creates and serves people's motivation to improve their own sanitation requirements. Although sound technological judgement about appropriate solutions remains essential, appropriate programming approaches are now more important, for they contribute most to the success of sanitation adoption (Mara *et al.* 2010).

Subsequently, in 2010, the Ghanaian Government, with the ratification of the Environmental Sanitation Policy (Revised 2009), officially adopted the CLTS approach to scale up rural sanitation. The CLTS approach is based on the premise that traditional sanitation programmes that focus on building latrines have proven too expensive and ineffective in changing behaviours, and that pure CLTS programmes are low cost because they provide no subsidies to build latrines, but rather focus on achieving sustained sanitation demand and behaviour change. Hence, it relies on trained facilitators to help communities analyse their current sanitation practices through a participatory approach that helps community members to confront the reality of negative impacts of practices and leads to rapid collective behaviour change. Consequently, communities are encouraged to spend their own money to build latrines themselves. In effect, Ghana has a clear national policy and strategic framework for CLTS. This includes a national commitment and implementation strategy that supports CLTS and a multi-stakeholder coordinating body.

METHODOLOGY

Data and source

This study used a sequential mixed method approach through the analysis of existing quantitative data and primary qualitative data. This was to help us gain depth and breadth concurrently.

Secondary quantitative data

The first stage of our study involved a descriptive and inferential analysis of the 2011 round of the UNICEF-sponsored Multiple Indicator Cluster Survey (MICS) of Ghana. The survey was intended to provide estimations on the welfare of women and children in some developing countries in Asia and Africa. At the time our study was initiated, the MICS dataset was the most recent nationally representative survey, drawing on a large sample of 12,150 households, from which an eligible 10,627 individual interviews were successfully conducted with a response rate of 97%. Details of the sampling procedures are available elsewhere (http://www.unicef.org/statistics/index_24302.html). The Ghana Health Service Ethics Review Committee gave ethical approval for the study.

Variables

An improved household sanitation facility refers to a sanitation facility that hygienically separates human excreta from human contact, and excludes shared toilet facilities (World Health Organisation 2008). These include flush/pour flush to piped sewer, flush/pour flush to septic tank, flush/pour to pit latrine, ventilated improved pit latrine, pit latrine with slab and composting toilet. A household with any of these was coded as 'improved = 1' while those using open pit latrine and bucket, no facility/bush/field were coded 'unimproved = 0'. Other control variables are level of education of head of household, sex of head of household, ethnicity and religion of head of household, ownership of house, urban–rural residence, region of residence and type of district (district, municipal and metropolitan).

Quantitative data analysis

The data analysis proceeded first with descriptive statistics (cross-tabulation and Chi-square test of independence) that explores the association between household sanitation and household wealth status as well as other control variables. Two multilevel binary logistic regression models were fitted to our dataset. The first model was based only on wealth status of households – a composite measure of household assets (Ghana Statistical Service 2012). In Model 2, we examine the wealth factor, by controlling for personal characteristics of heads of households: namely, age, level of education, sex, ethnicity, religion, ownership of house, urban–rural residence, region, and type of district, were included in the equation to test the resilience of household wealth in explaining the availability of improved sanitation. Despite the fact that type of household sanitation was one of the indices used to compute wealth quintiles, it has limited particular effect to distort further analysis (Rutstein & Johnson 2004).

Primary qualitative data

In the second stage of the study, the results obtained from the analysis of the quantitative data served as the basis for selecting sites for in-depth interviews (IDIs) and focus group discussions (FGDs). Three regions where uptake of improved household sanitation was low were selected.

These regions were the Volta, Brong-Ahafo and the Northern regions. The three regions reflect the main ecological zones of the country – coastal, forest and the savannah, respectively. Despite the fact that residents in rural areas in Ghana have the lowest coverage of improved sanitation (WHO/UNICEF 2013), we intentionally selected urban areas for further inquiry because the impact of inadequate sanitation is grave in urban areas (Kimani-Murage *et al.* 2014) and because cholera, diarrhoea and dysentery epidemics occur more often in urban areas than rural (World Health Organisation (WHO) 2013). For example, the recent cholera outbreaks in Ghana were mainly clustered in large urban communities, on the regional capitals. Consequently, the regional capital of each of the three regions was selected. Purposive sampling was used to select suburbs where IDIs and FGDs were conducted. The suburbs are not specifically mentioned for ethical reasons. In addition, we purposively interviewed the heads of the following bodies: Regional Environmental Health Office (REHO), and Municipal/Metropolitan/District Environmental Health Office (MEHO/DEHO). Ten landlords/landladies/owners/care takers (henceforth called homeowners) and 20 tenants were purposively selected and interviewed in each suburb. The main criterion for inclusion in the interviews and the FGDs was being a resident in a house without a toilet facility. For homeowners, our goal was to understand their reasons for not making efforts to provide improved sanitation services, and for the tenants, our motivation was to understand how sanitation featured in their home renting decision-making. Apart from the IDIs, six FGDs were conducted – two in each suburb among males and females, respectively. In all, a total of 150 individuals participated in the study (IDIs = 102 and FGDs = 48). An important caveat that should be noted is that the sample of respondents for the interviews is not statistically representative. Sampling was opportunistic: in each settlement, the research team interviewed house owners or tenants who were present and available for interview. Table 1 provides the summary of the distribution of respondents.

IDIs and FGDs were conducted in English (for institutional heads) and in the language *Bono* in the Brong-Ahafo, *Ewe* in the Volta Region and *Dagbani* in the Northern Region. Six experienced research assistants (RA), fluent in the English language and the main local language spoken

Table 1 | Sample for the study

| Sample | Ecological zones | | | |
	Tamale	Sunyani	Ho	Total
Tenants	20	20	20	60
House owners	10	10	10	30
REHO	1	1	1	3
DEHO	1	1	1	3
WMD	1	1	1	3
Zoomlion	1	1	1	3
Total	**34**	**34**	**34**	**102**
FGDs	2	2	2	6

in each of the regions, conducted the interviews. Prior to the fieldwork, all the RAs were taken through a 2-day training session where the objectives of the study, the methods, rudiments of qualitative data collection and all other relevant components of the study were adequately explained. After the training, the RAs conducted mock IDIs and FGDs under the supervision of the lead researchers. Emerging issues were discussed thoroughly, based on which strategies were developed for the actual fieldwork.

Qualitative data analysis

The IDIs and FGDs were transcribed and translated into English based on the language used for interviewing. The transcripts were later exported into NVivo 10 (QSR International) software and coded. The data were analysed using both deductive and inductive approaches (Mason 2006). Credibility and trustworthiness were ascertained through member checking, thick descriptions and inter-researcher coding.

RESULTS

Background characteristics of households

The results are presented under two sub-headings, namely, descriptive characteristics of survey respondents (Table 2) and the distribution of survey participants by household improved sanitation (Table 3). A weighted final sample of 9,736 was obtained for the analysis. In terms of household wealth quintile, a little more than one-quarter (28.9%) of

Table 2 | Distribution of household sanitation facilities by socioeconomic characteristics

Covariates	% Using improved sanitation	No.
Wealth	$\chi^2 = 847.6$ ($p < 0.000$)	
Poorest	15.0	659
Second	8.0	1673
Middle	8.0	2,132
Richer	11.2	2,459
Richest	38.6	2,811
Region	$\chi^2 = 183.82$ ($p < 0.000$)	
Western	18.3	971
Central	13.0	1,061
Greater Accra	28.0	2,158
Volta	8.0	763
Eastern	17.5	1,453
Asante	17.5	2,110
Brong-Ahafo	10.3	866
Northern	17.8	214
Upper East	26.5	52
Upper West	16.7	82
Type of place of residence	$\chi^2 = 89.5466$ ($p < 0.000$)	
Urban	21.6	5,809
Rural	12.8	3,927
Type of district	$\chi^2 = 68.8213$ ($p < 0.0011$)	
Ordinary	13.8	4,301
Municipal	21.1	3,317
Metropolitan	21.7	2,117
Sex of head of household	$\chi^2 = 11.8261$ ($p < 0.0166$)	
Male	19.1	6,580
Female	15.8	3,155
Education of head of household	$\chi^2 = 319.93$ ($p < 0.000$)	
None	11.9	1,825
Primary	8.0	1,204
Middle/JSS	15.6	4,115
Secondary/Higher	31.0	2,587
Religion of head of household	$\chi^2 = 52.29$ ($p < 0.000$)	
Catholic	20.5	1,205
Protestant	22.3	1,971
Pentecostal/Charismatic	17.2	3,615
Other	20.0	894
Muslim	15.0	1,083

(*continued*)

Table 2 | continued

Covariates	% Using improved sanitation	No.
Traditional	10.0	207
Spiritual	11.4	758
Ethnicity	$\chi^2 = 8.62$ ($p < 0.4264$)	
Akan	18.8	5,345
Ga/Dangme	19.7	1,016
Ewe	16.8	1,495
Mole-Dagbani	15.0	873
Others	17.0	1,005
Household ownership	$\chi^2 = 121.66$ ($p < 0.000$)	
Own	24.2	3,718
Rent	14.5	3,047
Rent free	13.3	2,728
Caretaker	22.6	241

Computed from Ghana Statistical Service (2011).

the respondents were in the richest quintile, while 6.8% were in the poorest category. About one-fifth of surveyed households were in the Greater Accra region and the majority (59.7%) of households were in urban areas (data not shown).

Households' access to improved sanitation

In this section, we show access to household sanitation, using the socioeconomic characteristics of the surveyed households. Almost one-third of households in the richest quintile had access to improved sanitation. Eight per cent of households in the poorer and average quintiles had access to improved sanitation, while 15% of the poorest households had access to improved sanitation ($p < 0.05$).

The results show significant spatial variations in improved sanitation – there was a moderately high proportion (28%) of households in the Greater Accra region followed by the Upper East region (26.5%), with the least access to improved sanitation reported in the Volta Region. A relatively higher proportion of households in urban areas (21.6%) used improved sanitation facilities compared to rural areas (12.8%). A small number of households in Metropolitan (22%) and Municipal (21%) areas reported better access to improved sanitation facilities than those in districts (13.8%) (Table 2).

Table 3 | Multilevel analysis of wealth and related covariates of household access to improved sanitation in Ghana, 2011

Factors	Model I OR	Model I Std. error	Model II OR	Model II Std. error
Wealth				
Poorest	1		1	
Poorer	0.54**	(0.085)	0.63**	(0.10)
Average/middle	0.63*	(0.13)	0.93	(0.18)
Richer	0.83	(0.19)	1.54+	(0.37)
Richest	4.33**	(1.16)	9.76**	(2.74)
Religion				
Catholic			1	(.)
Protestant			1.05	(0.131)
Pentecostal/ Charismatic			0.86	(0.101)
Other			1.02	(0.158)
Muslim			0.79+	(0.113)
Traditional			0.64	(0.186)
Spiritual			0.58**	(0.108)
Ethnicity				
Akan			1	(.)
Ga/Dangme			0.76+	(0.113)
Ewe			1.10	(0.142)
Mole-Dagbani			1.04	(0.163)
Others			1.29+	(0.173)
Home ownership				
Own			1	(.)
Rent			0.19**	(0.0196)
Rent free			0.31**	(0.0313)
Caretaker			1.35	(0.293)
Education				
None			1	(.)
Primary			0.78	(0.121)
Middle/JSS			1.07	(0.126)
Secondary/Higher			1.78**	(0.230)
Type of district				
Ordinary			1	(.)
Municipal			0.88	(0.0844)
Metropolitan			0.79+	(0.0975)
Urban–rural residence				
Rural			1	
Urban			0.82+	(0.0844)

(*continued*)

Table 3 | continued

Factors	Model I		Model II	
	OR	Std. error	OR	Std. error
Sex of head of household				
Female			1	
Male			1.00	(0.084)
− 2 log likelihood	−2,845.08		−2,636.12	
Cons	0.15**	(0.034)	0.19**	(0.05)
Regional variance	1.03	(0.022)	1.03	(0.02)
Covariance (region-wealth)	0.88	(0.082)	0.91	(0.07)
No.	7,167		7166	
AIC	5,706.2		5,328.3	

$+ p < 0.10.$
$* p < 0.05.$
$** p < 0.01.$

Regression results

Table 3 shows the two models computed at individual and regional levels with fixed and random effects. The results show wide variability in access to improved sanitation in households by wealth quintiles. Differences in access to improved sanitation facilities ascribed to individual and regional effects increased from 87.7% (Model I) to 91% (Model II). The likelihood of reporting the availability of improved sanitation in households with more assets was four times higher (OR = 4.33 95%, SE = 1.161) than those with the poorest or the least number of assets. The findings also show that the poorer (OR = 0.54, SE = 0.085), the average (OR = 0.63, SE = 0.13) and the richer (OR = 0.83, SE = 0.19) compared to the poorest (base) were less likely to have improved sanitation. In Model II, where we controlled for all the salient variables, the gap between the richest households compared with the poorest category widened by nearly ten-fold (OR = 9.76, SE = 2.74). The odds for the richer category turned positive (OR = 1.54, SE = 0.37) but the poorer and middle/average remained lower than the poorest. The comparison of Model I and II shows that the latter fits the data better than the former, as shown by the −2 log likelihood ratios (Model I −2 log likelihood = 2,845.08 and Model II = 2,636.12) (Table 3).

The probability of having access to improved sanitation varied among the various denominations of religion, types of ethnic groups, home ownership, education, type of district and rural-urban dichotomy. On religion, for instance, Moslem- and Spiritualist-headed households were significantly less likely to have improved toilet facilities compared to Catholics. For those in rented and rent-free premises, the probability of having improved sanitation was significantly lower compared to those in their own houses. The heads of households with secondary or higher education were likely to have improved sanitation facilities (OR = 1.78, SE = 0.230). Households located in urban and metropolitan areas were significantly less likely to be using improved sanitation facilities compared to residents in local government areas categorised as districts.

Drivers of low household sanitation

Using qualitative evidence, an attempt was made to understand the motivations for the provision or otherwise of improved sanitation in houses from the perspectives of house owners, tenants and sanitation officials. Two main reasons that featured prominently were inadequate funds and lack of space to build the facility. From the perspectives of house owners, financial challenges were more predominant, but they also mentioned failure to include improved toilet facilities in the initial building plans. An 87-year-old male house owner had this to say:

> *Yes, I know it is obligatory. It is all about money. Even if you wish to have it in your house, you will have to get money to buy all the necessary materials for the construction and also pay for labour. Sometimes too, it is about space. You need to have a space where the cesspit trucks can park before collecting the faeces when the tank is full.*

However, some sanitation officials and tenants did not attribute the limited access to improved sanitation to poverty or lack of space; they attributed it to ignorance, apathy and prioritisation. On ignorance, a male DEHO remarked:

> *I will say the major reasons cannot be attributed to poverty especially in this Municipality. Virtually everybody*

in the municipality, especially in this township, lives in blockhouses…concrete houses! If you are able to get money to build your apartments for renting, I don't see what can prevent you from building toilets in those houses. So I will attribute this situation to ignorance; people don't see toilet as a facility necessary to be included in the construction of a house. That is why now we want to apply the law to compel households to put toilet facilities in those houses.

One argument during the fieldwork was that if house owners could afford the cost of concrete houses, there was no point scapegoating economic problems as the cause of the lack of improved sanitation. This was how a 33-year-old male tenant put it:

Where I live is a rented place and I'm not the only one in the house. It is the responsibility of our landlord to ensure that facilities such as toilet are provided. Anytime we hold a meeting with him and we ask him to do it, all he says is that he has heard us! But he does nothing about it.

Some of the respondents also contended that house owners have simply failed to prioritise improved sanitation. A REHO describes an example of a typical view on prioritisation as follows:

I don't think poverty is the real issue as far as access to improved sanitation is concerned. On a list of ten challenges, I will place poverty at the last position. The real issue is the poor attitude and misconceptions people have about sanitation. In fact, you will be amazed at the kind of complex assets people have even in rural households. It is a matter of priority and not poverty. That is why I think if we are able to reorient their priorities and change their behaviour, they will see the need to build their own toilets.

There were accounts of cultural objections to locating toilet facilities in households because of the unpleasant smell that comes from toilet facilities. A 21-year-old respondent noted:

I think there is this notion that it is not good to site toilets in the house because of the smell; hence constructing

several of them in the community or in every household will lead to pollution of the air since the houses are very close to each other. Consequently, residents agree that they may just construct just one far from the community where everybody can have access.

It was further noted from the respondents that the presence of many public toilet facilities in communities is counterproductive to house owners' desire to construct private sanitation facilities. A 25-year-old tenant opined the following:

Because of this public toilet, most households don't see the need to have their private toilets. For example, this house used to have a toilet facility but since it got broken down, they did not repair it again. Apparently, they felt like they could use the public toilet. Therefore, I think they don't see it as a priority to have toilets in the house.

Some respondents attributed the problem of low sanitation uptake to political interference. Officials who were mandated to ensure that house owners provided improved sanitation facilities expressed this view. According to them, they are restrained from prosecuting homeowners who refused to provide improved sanitation. Some of them narrated the following experiences. A male DEHO had this to say:

…When a landlord or an individual commits an offence and we prepare him or her for court, a chief or a Member of Parliament (MP) or even the District Chief Executive will come and prevail upon you or your superior to drop the case. We have had several of such experiences. Sometimes we are frustrated by these interferences, which demoralize our field staff in terms of taking future actions.

Participants, especially the tenants, raised the issue of spatial limitations. They argued that lack of space, which primarily was the result of poor spatial planning, constrained the desire for constructing private toilet facilities. A 25-year-old male tenant remarked as follows:

As I said earlier, it is all about space. There is not enough space to dig 'man-holes'. As you can see, this is the

bathhouse and just beside it was supposed to be the toilet facility. But because of the space for the 'man-hole' it was not provided. That was why it was also converted into a bathroom in addition to the initial one.

DISCUSSION

The primary aim of this study was to investigate whether the low coverage of improved sanitation in Ghana is attributable to poverty, as measured by households' wealth status. To this extent, a nationally representative dataset was employed to analyse the role of wealth on the availability of improved sanitation in households. Complementing this was a series of interviews and FGDs conducted with homeowners, tenants and environmental sanitation officers. The quantitative data analysis revealed that household access to improved sanitation differed according to wealth, geographic region, educational level, religious affiliation, ethnic groupings, home ownership and type of administrative district.

Our quantitative analysis affirms a strong linear relationship between wealth at the household level and access to improved sanitation. This finding is consistent with previous studies by, e.g., Boadi & Kuitunen (2005) and Gross & Günther (2014), who found a positive association between wealth and improved sanitation coverage. The poverty argument was also recurrent in the focus group discussions with house owners as well as tenants. House owners were concerned with the cost of initial investment, while tenants worried about the high cost of renting homes with improved sanitation. This caused them to rent homes without sanitation. An important issue underlying this is also the problem of sub-standard houses (Yakubu *et al.* 2014), leading to poor housing characteristics (Boamah 2015).

The qualitative analysis revealed that cultural and behavioural nuances play an important role in sanitation coverage in Ghana. In most Ghanaian communities, while cleanliness is a virtue, it is, at the same time, complicated by misconceptions of the proper place of siting toilet facilities. Van Der Geest (1998) has observed that although most Ghanaian communities show strong abhorrence to dirt, it is ironic that less effort is made to ensure proper disposal of faeces. Traditionally, faeces are thought to be nasty and any structure as a toilet facility needs to be sited farther

away from the house. For example, Mariwah & Drangert (2011) found that most residents in a peri-urban community who want their toilet facilities to be located farther away from their houses cited bad smells as their main reason. Perhaps the aversion is what encourages siting toilet facilities away from residential quarters.

This paper also reveals the power relations between house owners and tenants, exacerbated by economic power. Thus, inadequate or a lack of decision-making power by tenants, who rent perhaps only a single room in a house, is limited when it comes to negotiating and demanding improved sanitation. This situation is worsened by the limited housing stock in most parts of the country. As the Ghana Statistical Service (2013) aptly indicates, city authorities in Ghana are overwhelmed by rapid population growth, resulting in inadequate housing stock, which in turn has contributed to the growth of squatter settlements where residents live in squalid conditions with limited, or in most cases no, access to basic sanitation services. Thus, a disequilibrium between the forces of demand and supply are at play – the limited options to tenants, which is a function of deficit in well-equipped housing units with basic utilities, is forcing a large pool of renters to be subjected virtually to the dictates of house owners, rendering their views inconsequential in the tenancy negotiation process. By extension, this scenario is a reflection of both poverty and the limited importance attached to sanitation facilities by most residents in their renting decision-making. From the perspective of low income, it has been asserted by Mariwah (2011), and confirmed in this study, that most residents, even those living in very low income settlements with limited income, aspire to have better and more convenient sanitation systems, but they lack the investment for the initial installation. On the other hand, as has been alluded to earlier, the findings of this study affirm the notion that improved sanitation is not given the needed priority by individuals in their renting decisions. This implies that access to improved sanitation at the household level is secondary to the immediate need to get accommodation for the household members. As a result, landlords attach little importance to the provision of toilet facilities in their houses because they are aware that provision of such facilities would make them uncompetitive in the rental market.

Again, poor spatial planning, which is one of the banes of sanitation and waste management in developing

countries, was noted. A number of studies investigating problems of spatial planning in African cities and towns have stressed this enduring problem of inadequate access to improved sanitation resulting from poor spatial planning, mainly arising from weak enforcement of by-laws (Jenkins & Scott 2007; Schouten & Mathenge 2010). Although improved sanitation is a pre-requisite for building permits in Ghana, these standards are not strictly enforced due to perceptions of corruption among spatial planners and land tenure arrangements (Fuseini & Kemp 2015; Sabbi & Mensah 2015).

Finally, the increasing number of public toilets, particularly in urban centres, has been a major hindrance to households' desire to own private toilet facilities. Within the context of the CLTS, where individual households are educated on the need for improved sanitation, the prevalence of public toilets discourages adoption of improved sanitation. However, this is not to say that public toilets are not important within an urban setting, but we want to emphasize the changing role of public toilets, from being mostly meant for the transient populations into a permanent sanitation option (van der Geest & Obirih-Opareh 2002) for many urban residents, especially those living in low-income areas, and this defeats the main intent of building such infrastructure.

CONCLUSION

This study has demonstrated the salience of wealth in access to household sanitation, especially from the quantitative evidence. However, beyond poverty, there are other important variables that equally well explain the low access to sanitation, such as region, education, religion, ethnic group, home ownership, and type of administrative district coupled with a mix of cultural, social, political and economic nuances, which converge to influence and somehow perpetuate low access to improved sanitation in Ghanaian households.

Despite the noted obstacles to the adoption of improved household sanitation, there are opportunities for increasing uptake as evidenced from our discussions. That people were cognisant of the importance of owning at least a toilet facility is heartening, and that efforts at increasing ownership of improved sanitation would benefit immensely from building

on the existing notions of that need. However, anticipated positive externalities (health benefits) are not likely to accrue if concurrent efforts are not made to highlight the health component of improved sanitation. In this regard, material support to the poor based on, for instance, means targeting can be effectively exploited. For those who can afford but are constrained by apathy, ignorance and negative perceptions among others, social marketing of sanitation through the scaling up of the CLTS approach in both rural and urban areas can help trigger awareness and influence behaviour change. These strategies should, however, be pursued in the broader context of adding technical advice and assistance in terms of specifications and design of affordable but sustainable toilets.

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