

Research Paper

Accelerating rural sanitation coverage in Ghana: what are the speed bumps impeding progress?

Isaac Monney, Amos Baffoe-Kyeremeh and Papa Kofi Amissah-Reynolds

ABSTRACT

Progress towards the Millennium Development Goal (MDG) sanitation target has generally been slow-paced in Ghana. This is particularly the case in rural areas where access to improved sanitation has increased by just 4% within two decades. This paper examines defecation practices as well as constraints and existing opportunities at both household and institutional levels in promoting in-house toilet construction. The study was conducted in three rural communities in the Tain district and drew on key informant interviews, focus group discussions, field observations and face-to-face interviews of 400 residents selected from 249 houses. The results showed the scarcity of in-house toilets, which means consequently open defecation and use of communal toilets are common practices. The need for in-house toilet facilities is high among property owners without them, mainly driven by the desire for comfort and safety. Barriers at the household level constraining latrine installation include ignorance of low-cost technologies, the perceived high cost of latrines and the low priority given to their ownership. Analysis of expenditure patterns at the local assembly shows low priority afforded to sanitation promotion, which is constrained by low donor support, lack of requisite logistics and poor human resource capacity. Existing opportunities for accelerating sanitation coverage in these study communities are examined both at the household and institutional levels, and best practices discussed.

Key words | community-led total sanitation, household toilet, MDG sanitation targets, rural sanitation in Ghana, sanitation coverage

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INTRODUCTION

The impacts of inadequate access to safe water and sanitation services, coupled with poor hygiene practices, remain an unseen emergency situation beyond the focus of the general public. This is due to the insidious way in which the lack of these facilities claims thousands of lives, not as an explosive which claims thousands of lives within a short period, but very gradually. This is more rampant than other mortality factors in the developing world. According to the UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS 2014), inadequate access to water and sanitation is a major driving force behind the spread of diseases

in households, schools, communities and health centres and is also responsible for hundreds of thousands of diarrhoea deaths among children (WHO 2014). This is corroborated by empirical studies conducted over the years, which provide factual evidence of the impacts of unsafe water and poor sanitation on public health (Esrey *et al.* 1991; Varley *et al.* 1998; Bartlett 2003; Fewtrell & Colford 2005; Prüss-Üstun *et al.* 2008; Cronin *et al.* 2014) and socio-economic development (Lenton *et al.* 2006; Hutton *et al.* 2007; Hutton & Bartram 2008). Figures provided by Prüss-Üstun *et al.* (2014) based on data from 145 countries suggest that close to 800,000 lives

were lost due to poor drinking water and sanitation in 2012. This is in spite of the renewed commitment by governments and development agencies to improve access to water and sanitation through the Millennium Declaration in 2000.

Over 700 million people still lack ready access to improved sources of drinking water, and more than 2.5 billion people do not have access to an improved sanitation facility (WHO/UNICEF 2014). These figures clearly depict the lopsided nature of efforts over the years to ensure access to potable water and basic sanitation. Although water and sanitation have been shown to complement each other, efforts to improve access to potable water and basic sanitation worldwide are largely biased in favour of the former at the expense of the latter, thereby partly nullifying the health benefits from the former (Gunawardana & Galagedara 2013). Worse still, efforts to improve access to sanitation worldwide are more concentrated in the wealthier urban centres, while progress is slow-paced in the impoverished rural areas (Kolsky *et al.* 2005; Zheng *et al.* 2013; Ghosh & Cairncross 2014; Pullan *et al.* 2014).

The situation in Ghana is no different from the global picture. Recent estimates by the WHO/UNICEF Joint Monitoring Programme, based on data collected in 2012, indicate that Ghana has achieved the Millennium Development Goal (MDG) drinking water target, while sanitation coverage lags behind the MDG sanitation target to a very considerable degree (by 40%) (WHO/UNICEF 2014). The pattern of sanitation coverage in Ghana also depicts huge rural–urban disparities. Currently, rural sanitation coverage (8%) is less than half of that reported in urban areas (20%). Although progress towards achieving the MDG sanitation target has been generally sluggish nationwide, it is worse in rural areas compared to urban areas. Between 1990 and 2012, the increment in urban sanitation coverage of 7% was almost twice that of rural sanitation coverage (4%) within the same period (WHO/UNICEF 2014).

Meanwhile, improving access to both safe water and sanitation has featured consistently in the string of national development policy frameworks aimed at reducing poverty and boosting economic growth since the mid 1990s. From the Ghana Vision 2020 ('The first step:1996–2000') through the Ghana Poverty Reduction Strategy (GPRS) I and II, to the latest Ghana Shared Growth and Development Agenda I (2010–2013), access to safe water and sanitation

is regarded as a cornerstone for poverty alleviation and safeguarding public health (Rawlings 1995; International Monetary Fund (IMF) 2012; National Development Planning Commission 2013). These national policy frameworks provided the foundation for the development of the National Water Policy (in 2007) and the Environmental Sanitation Policy (ESP, initially developed in 1999 and revised in 2010) to steer efforts in the water and sanitation sector (Ministry of Water Resources Works & Housing 2007; Ministry of Local Government & Rural Development 2010a). Among other things, these policies spell out unequivocally the objectives and the institutional roles and responsibilities for the sector. For the ESP, complementary action and investment plans, namely, the National Environmental Sanitation Strategic and Action Plan (NESSAP) and the Strategic Environmental Sanitation Investment Plan (SESIP) were developed in 2010 and 2011, respectively (Ministry of Local Government & Rural Development 2010b, 2011).

Moreover, an elaborate institutional framework which indicates the relationship between sector institutions has been clearly defined by these policies. At the national level, the Environmental Health and Sanitation Directorate (EHSD) under the Ministry of Local Government and Rural Development (MLGRD) is the lead institution responsible for, among other things, policy development and mobilisation of funds for sector programmes. At the local level, the Environmental Health and Sanitation Units (EHSUs) in Municipal, Metropolitan and District Assemblies (MMDAs) provide overall leadership for sanitation and public health issues, working together with the Community Water and Sanitation Agency (CWSA) in rural communities. Water and Sanitation Management Teams (WSMTs) solely responsible for water and sanitation issues also exist in some communities across the country.

To accelerate rural sanitation coverage, the mother agency in the sector, MLGRD, adopted the Community-Led Total Sanitation (CLTS) approach in 2007 and has since been implementing it in selected areas together with NGOs, notably UNICEF, Plan Ghana and WaterAid (Magala & Roberts 2009). This approach stimulates communities to change their sanitation behaviour and thus make conscious efforts to become open-defecation-free (Kar & Chambers 2008). Although promising, implementation of this approach has been concentrated mostly in the

Northern, Upper West, Eastern, Central and Greater Accra Regions of Ghana (Magala & Roberts 2009; Quansah 2011). Implementation and scaling up of this initiative have not been without challenges, and progress in rural sanitation coverage is still dawdling.

Generally, empirical evidence on what has caused the snail-paced progress in improving access to sanitation in rural communities in Ghana is not only scarce, but also limited to certain regions across the country. Only two studies (Jenkins & Scott 2007; Keraita *et al.* 2013) have focused on this issue, providing evidence from six out of ten regions in Ghana. According to Jenkins & Scott's study, which is based on 536 households in five regions across the country, the constraints to the final choice for a household to build a latrine include satisfaction with defecation practice, perceived high costs of toilet options, lack of information on latrine technologies, lack of latrine building services, water table/soil conditions, and technical complexity (Jenkins & Scott 2007). Keraita *et al.* (2013) also concluded that the slow progress is attributable to financial constraints, poor sanitation promotion and general biophysical factors. Their study was based on 156 household interviews in four rural communities in the Volta Region of Ghana.

This present study generally provides information on the factors that impede progress in rural sanitation coverage in the Brong Ahafo region, where no previous study has ever been undertaken. As a step further from these previous studies, this study not only examines the constraints to in-

house toilet provision at the household level, but also assesses both the institutional challenges to promoting in-house latrine construction as well as the existing opportunities. It will therefore augment and consequently extend the boundaries of the existing body of knowledge on the subject. The findings of this study will also provide insight as to whether or not the constraints to constructing in-house toilets differ across the country. The study objectives are specifically to examine current defecation practices; demand for in-house toilets and underlying reasons; constraints to household latrine installation; and the institutional bottlenecks to progress in improving sanitation in the three rural communities.

MATERIALS AND METHODS

This cross-sectional study was undertaken in three communities, namely Nkona, Njau and Tanoso, all located in the Tain district of the Brong Ahafo region of Ghana. The district was established about a decade ago and is one of the 27 Municipal and District Assemblies in the region. It is located north-west of Sunyani, the regional capital, and lies within latitude $7^{\circ}30'$ and $8^{\circ}45'$ N and longitude $2^{\circ}52'$ W and $0^{\circ}28'$ E (Figure 1). It has a total population of about 88,000 (2010 estimate) and covers a land area of about 1,800 km² (Ghana Statistical Service 2014). The district is endowed with fertile soils and optimum climatic conditions, thereby making it suitable for the cultivation of crops such

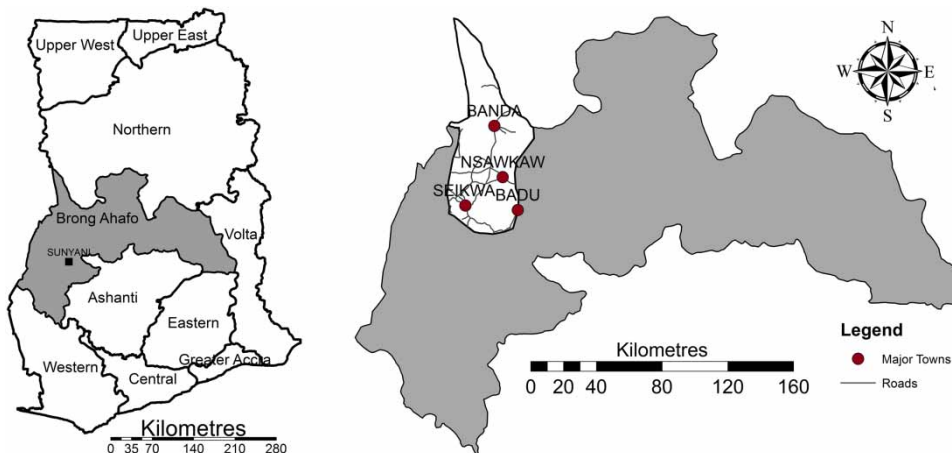


Figure 1 | Location map of Tain district.

as maize, yams and cassava. Consequently, close to 90% of households in the district are engaged in agricultural activities.

Geographically, Tanoso and Njau are located approximately 7 km south-west from the district capital Nsawkaw, while Nkona is almost joined to Nsawkaw, being only about 100 m south-east of the town. All the study communities have populations less than 5,000 and are therefore classified as rural communities, as per the definition of the [Ghana Statistical Service \(2013\)](#). However, among these communities, Nkona has the highest population (about 1,200), followed by Njau (about 700) while Tanoso has the lowest population (about 400).

Data collection and analysis

The study employed the descriptive survey approach and was based on in-depth interviews with a Principal Environmental Health Officer, field observations, questionnaire administration and five Focus Group Discussions (FGDs) conducted between August and December 2013. Ethical clearance was obtained from the EHSU of the Tain District Assembly. Both random and purposive sampling techniques were used to select 400 resident respondents stratified into house residents (72), tenants (128), house owners (108) and landlords (92) in 249 houses in all the three study communities. For the purposes of this study, these terms are defined as follows. A 'house resident' is someone living in a particular house who does not pay any money for being a resident by virtue of being related to the owner of the house; a 'tenant' is someone living in a particular house who pays money to live in the house for a particular period of time; a 'house owner' owns a house but does not collect rent fees from residents; a 'landlord' owns a house and collects rent fees from one or more residents in the house or a person who, on behalf of the owner of the house, collects rent fees from one or more residents. Respondents for the study were predetermined to equally comprise 'property owners' (these representing both house owners and landlords) and 'occupants' (which generically represent both house residents and tenants). This categorisation was aimed at obtaining cross-cutting information from people with different occupancy status in the study communities. Out of the 249 houses involved in the study, 151 had

either both occupants and house owners or both occupants and landlords present during the survey. Consequently, for each of these houses, two respondents – comprising a house owner or landlord and an occupant (either tenant or house resident) – were interviewed. Moreover, out of the remaining 98 houses, 49 had only occupants present during the survey and therefore an occupant was interviewed from each of these houses to make up the 200 targeted occupants. Conversely, only landlords or house owners were interviewed exclusively for the remaining 49 houses to obtain the 200 respondents required for property owners.

House residents and tenants were identified from the survey by asking respondents how much they paid as monthly rent as part of the questionnaire. Similarly, house owners and landlords were identified by inquiring whether or not they take monthly rent from any occupant of the house. Verbal consent of respondents was sought prior to administration of the questionnaires and FGDs. Respondents to the study questionnaires included only residents in the communities who were 18 years old and above. Selection of the number of respondents from the study communities was based on the population distribution and accordingly comprised 50%, 30% and 20% from Nkona, Njau and Tanoso, respectively.

Two different structured questionnaires were used to collect data from both tenants and landlords. These questionnaires, although prepared in English, were translated into the local dialect of respondents during administration. While both questionnaires captured information on respondents' demographic characteristics and defecation practices, the questionnaire for property owners was designed to collect information on ownership of in-house toilets; types of toilet technologies; ownership of assets; demand for in-house toilets; key drivers of demand for in-house toilets; and constraints to providing in-house toilets. The questionnaire for occupants further captured information on annual rent charges based on number of rooms rented and willingness to pay extra rent for installation of an in-house toilet facility. FGDs were used to validate information obtained in the questions and were primarily focused on determining the challenges associated with current defecation practices and why landlords have failed to provide in-house toilet facilities. Additionally, interviews with the

Environmental Health Officer were aimed at identifying the challenges confronting the EHSU towards ensuring in-house toilet provision as per the local bye-law.

Interview results were manually recorded in the form of handwritten notes, while FGD results were captured by transcribing into English on-site. Quantitative data were analysed using the Statistical Package for the Social Sciences (SPSS) version 17.0 (now referred to as IBM SPSS Statistics) and Microsoft Excel 2007 in May 2014. Comparative analysis to determine the association between annual rent per tenant for each room and availability of an in-house toilet was carried out with the chi square (χ^2) test at 5% significance level using SPSS. Single factor ANOVA at 5% significance level was also used to determine the statistical significance of the variation in annual rent charges in the three communities using Microsoft Excel.

RESULTS

This section describes the findings obtained from the three study communities and therefore does not reflect the situation in all of rural Ghana. Table 1 shows the socio-demographic characteristics of both categories of

respondents, namely Occupants and Property owners. Generally, both respondent groups were dominated by males (Occupants = 60.5%; Property owners = 64.0%); usually between the ages of 26 and 45 years (Occupants = 65.5%; Property owners = 64.0%), mostly with Junior High School education (Occupants = 31.5%; Property owners = 33.0%), and commonly engaged in farming activities (Occupants = 39.0%; Property owners = 60.0%).

Current defecation practices

Access to an in-house toilet facility was a rare sight in the study communities. Out of 249 study houses, less than a tenth (6.4%) had in-house toilet facilities (Figure 2). The toilet technologies comprised predominantly dry on-site systems: simple pit latrines (0.4%) and Ventilated Improved Pit (VIP) latrines (4.8%). Flush toilets constituted only 1.2% and were limited to Nkona, where a Small Town Water Supply System stores water in elevated tanks and connects to some households for domestic use. All the toilet facilities were functional and were being used by residents in compound houses.

Open defecation was the commonest defecation practice among all the categories of study respondents, particularly among house owners (Table 2). This was closely followed by the use of communal toilets. Reportedly, some respondents without access to an in-house toilet resorted to their neighbour's toilet facility, but this was uncommon (Table 2).

Astoundingly, although each of these communities has communal toilet facilities, only Nkona has separate cubicles for males and females. Moreover, unlike Tanoso and Njau, residents in Nkona pay a Gh10pesewas (Gh10pesewas = Gh¢0.1 = US\$0.31; exchange rate: US\$1 = Gh¢3.2 as of May 2014) user fee per person per visit for the communal

Table 1 | Socio-demographic characteristics of study respondents

Parameter	Variable	Categories of respondents	
		Occupants n (%)	Property owners n (%)
Gender	Female	79 (39.5)	72 (36.0)
	Male	121 (60.5)	128 (64.0)
Age group (years)	18–25	39 (19.5)	0 (0.0)
	26–35	70 (35.0)	59 (29.5)
	36–45	61 (30.5)	69 (34.5)
	46–55	18 (9.0)	36 (18.0)
	>55	12 (6.0)	36 (18.0)
Educational level	Illiterate	35 (17.5)	43 (21.5)
	Primary	36 (18.0)	48 (24.0)
	Junior High School	63 (31.5)	66 (33.0)
	Senior High School	36 (18.0)	27 (13.5)
	Tertiary	30 (15.0)	16 (8.0)
Occupation	Professional	45 (22.5)	24 (12.0)
	Self-employed	50 (25.0)	38 (19.0)
	Unemployed	27 (13.5)	18 (9.0)
	Farmer	78 (39.0)	120 (60.0)

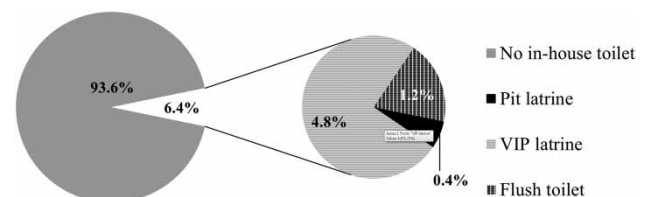


Figure 2 | Access to in-house toilet facilities ($n = 249$ houses).

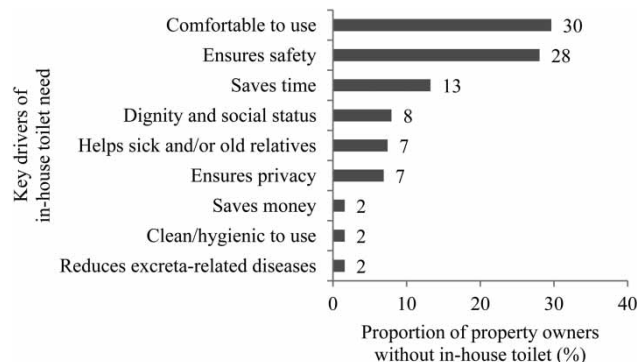
Table 2 | Frequency distribution of defecation practices among study respondents

Defecation practices	Occupants <i>n</i> (%)		Property owners <i>n</i> (%)	
	Tenants (<i>n</i> = 128)	House residents (<i>n</i> = 72)	Landlord (<i>n</i> = 92)	House owner (<i>n</i> = 108)
Household toilet	7 (5)	2 (3)	8 (9)	3 (3)
Open defecation	57 (45)	31 (43)	49 (53)	60 (56)
Communal toilet	58 (45)	35 (49)	32 (35)	38 (35)
Neighbour's household toilet	6 (5)	4 (6)	3 (3)	7 (6)

toilet available. However, as gathered from the study, this fee is insufficient to maintain the facilities. The other communities do not pay any fee for using the facilities, mostly citing reasons of uncleanness and foul odour of the facilities as the main factors. It was not surprising, therefore, to see all the facilities in a state of disrepair and characterised by insanitary conditions.

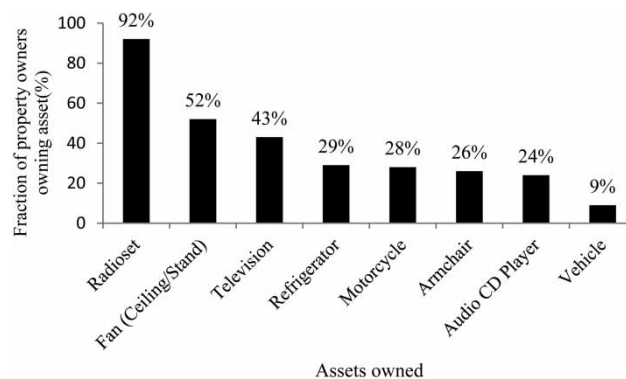
Close to nine out of ten property owners without an in-house toilet facility ($n = 189$) cited financial constraints as the major reason for not being able to provide the facility, while the rest asserted that they have far more pressing needs currently than an in-house toilet facility. Most likely, property owners believe it might cost them a great deal to construct the facility. Their answers to a question on latrine types known to them imply they are unaware of low-cost technologies that do not require huge capital costs to construct. Meanwhile, despite their financial constraints, no property owner without an in-house toilet affirmed ever considering securing a microcredit for construction of an in-house toilet. The few (20%; $n = 40$) who had ever accessed microcredits between GH¢500 (US\$156) and GH¢10,000 (US\$3,125) from financial institutions reportedly used them to purchase farm inputs (37.5%); build a house (22.5%); invest in trading activities (15%); support a ward's education (12.5%); or purchase a vehicle (12.5%).

When asked whether they want to own a household toilet, all property owners without in-house toilets said yes. Reported drivers for in-house toilet need were dominated by comfort (30%; $n = 189$), safety (28%; $n = 189$) and the time-saving benefits (13%; $n = 189$) (Figure 3). These were corroborated by FGDs including both occupants and property owners, where most discussants asserted that instances

**Figure 3** | Drivers of in-house toilet need ($n = 189$).

of snake bites in the bush and prying eyes during open defecation pose grave risks and an affront to their dignity, respectively. Use of the same communal facility by both sexes was hugely criticised by some discussants in Tanoso and Njau and was identified to be among the major reasons for open defecation in the communities. Additionally, some discussants pointed out through the FGDs that the long queues of persons waiting outside for their turn and the pervasively unpleasant smell and flies that characterise the communal toilet facilities create an unnerving atmosphere for them to conveniently use the facility.

Asset ownership patterns among property owners in the three study communities portray, in essence, that in-house toilets are not considered a necessity. This is evidenced by the fact that about half of property owners without in-house toilets owned ceiling/standing fans and television sets (Figure 4). Moreover, close to a third owned refrigerators, motorbikes, armchairs and audio CD players while about a tenth owned a vehicle.

**Figure 4** | Asset ownership pattern among property owners without in-house toilet facility ($n = 189$).

Annual rent charges per room paid by tenant respondents ($n = 128$) varied across the three study locations: in Tanoso they ranged from US\$19 to US\$26; those in Njau from US\$19 to US\$90; and in Nkona they were from US\$34 to as high as US\$375. Relatively, Nkona has the highest mean annual rent per room (US\$92 \pm 47) and also showed very inconsistent rent charges, more likely due to its proximity to the district capital. Conversely, Tanoso had the least mean annual rent per room (US \$23 \pm 2) with consistent rent charges. The mean annual rent per room in Nkona was four times higher than that of Tanoso, while the mean annual rent per room for Njau was also about 50% higher than that of Tanoso. Overall mean annual rent per room for the three study communities was US\$75 \pm 50. The annual rent charges per room in the three communities showed a statistically significant difference ($P < 0.05$; $F = 28.32$; $F_{crit} = 3.07$) based on the one way ANOVA.

Results from the chi square test to determine the association between annual rent per tenant for each room and availability of an in-house toilet showed that no statistically significant association exists between these two parameters ($\chi^2 = 1.412$; $P = 0.235$). This implies that tenants paying relatively high annual rent charges are equally faced with the same ordeal of having to search for a place of convenience elsewhere as in the case of those paying for lower annual rent charges.

There was a high willingness on the part of tenants without an in-house toilet to pay extra rent just to raise enough capital investment for its construction. This was illustrated by the fact that 98% of this category of tenants ($n = 104$) expressed the willingness to pay extra annual rent for such a purpose.

Barriers to promoting in-house toilet adoption at the institutional level

The study findings point out that the EHSU of the district, which has oversight responsibility for public health and sanitation issues within the entire district, lacks the requisite human resource capacity and logistics to effectively carry out its mandate. The Unit has a staff strength of 13 Environmental Health Officers responsible for public health protection and sanitation issues in all the eight area councils

and the town council in the Tain district. This is not adequate for effective execution of the requisite duties and responsibilities across the entire district. Although the Unit collaborates with the CWSA, this does not completely address the shortfall in staff strength needed for effective execution of tasks in the whole district. Logistics for transportation are also grossly inadequate in that the Unit has only two motorbikes for its 13 personnel to carry out its duties across the entire district.

Local-level legislation in the Assembly makes it an offence for a property owner to put up a building without a toilet facility. However, this legislation is weakly enforced in the district, particularly in rural areas. As was inferred from the interviews, authorities consider rural people as being poor, and therefore sanctioning them through fines is not the ideal way to address the issue in these areas; rather, they consider health education through CLTS to create awareness of the need to construct and use an in-house toilet. The EHSU therefore promotes CLTS in communities within the district, but its effectiveness is questionable considering the meagre resources available to the Unit.

It was observed from the study that funding for developmental activities in the Tain district largely depends on grants, either from the Central Government (mainly the District Assembly Common Fund (DACF) or from donors. Internally generated funds (IGF) constitute a meagre proportion of the district's total revenue as shown in Figure 5. Meanwhile, the DACF from the Central Government is not disbursed in a timely manner, and therefore affects execution of planned projects.

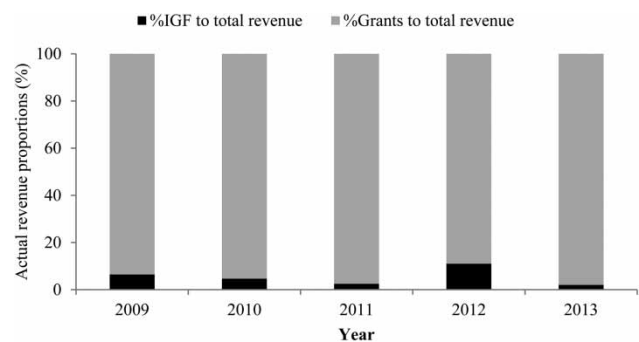


Figure 5 | Disaggregated revenue sources for Tain district (Source: 2012 & 2014 District Composite Budgets).

Additionally, donor support is generally low, confirmed by the huge disparity between the budgeted and actual donor funds reported in the district's annual budget over the years. Shortfalls between budgeted donor support and actual donor funds received between 2010 and 2013 ranged between 2% and 2,514%. However, donor funds (mainly from the French Agency for Development (AFD) and the International Development Association (IDA) of the World Bank constitute a major source of revenue for water and sanitation projects, but the EHSU did not benefit from these funds in 2012 and 2014 as per the respective District Composite Budgets. Although expenditure in the district is dominated by health, this is mostly expended on hospital services. The district has been supported with funds from AFD to establish a sanitation market at Nsawkaw, but this is insufficient to reach all residents within the district. Worse still, no budgets were made for CLTS activities by the EHSU in 2012 or in 2014.

DISCUSSION

The scarcity of in-house toilets (6.4%; $n = 249$) and the consequent predominance of open defecation in the study communities have potentially grave health implications for residents. Apart from the prying eyes and snake bites during open defecation, as reported in the study, this practice could be particularly disadvantageous to women who are prone to sexual abuse while finding places of convenience under the cover of darkness (McConville 2003) and to children who are mostly affected by diseases associated with it (Bartram & Cairncross 2010). Worse still, the few in-house toilets in the communities cannot be classified as improved sanitation facilities as per the definition of the WHO/UNICEF Joint Monitoring Programme (JMP) since they are all shared by more than one household (WHO/UNICEF 2013). Empirical evidence provided by Tumwebaze & Mosler (2014) suggests that such facilities end up in a deteriorated state and pose health risks since users fail to adequately maintain them. This could potentially influence users to resort to communal toilet facilities, neighbours' toilets or even open defecation.

Additionally, the use of communal toilets as the primary place of convenience is in utter contrast to the ESP, which

directs local assemblies to ensure that residents use household toilets instead of public toilets (Ministry of Local Government & Rural Development 2010a). According to this policy, public toilets are to serve transient populations and should not be primary places of convenience for residents in a community.

As opposed to findings by Jenkins & Scott (2007), residents using the communal latrines are generally not satisfied with this practice and this could motivate them to construct and use their own toilet facilities. Property owners across the country are required by law to provide in-house toilet facilities (Water & Sanitation Monitoring Platform 2011), and non-compliance by landlords is particularly inexcusable since tenants pay for rent charges which should include such a service. In spite of this, the annual rent charges per room were observed to be independent of the absence or presence of an in-house toilet facility, implying that landlords do not factor in this service before establishing rent charges. The decision to either provide an in-house toilet facility or not rests totally with property owners, and without authorities playing their watchdog role by enforcing sanitation bye-laws, the status quo would prevail.

Reported financial limitations to constructing in-house latrines are similar to those identified by Keraita *et al.* (2013). However, for these study communities, although all property owners without in-house toilets conveniently claim to be financially constrained, this is indeed a convenient excuse for some of them. Rather, the status quo has been the result of the low priority given to in-house toilets and sheer unwillingness, in that some property owners without in-house toilet facilities choose to own assets such as refrigerators, motorbikes, vehicles, fans etc. which are expensive relative to some low-cost sanitation technologies like the simple pit latrine. In Bangladesh, Zheng *et al.* (2013) reported that construction of in-house latrines could cost approximately US\$50, which is lower than most of the assets owned by these property owners. The findings in this study mirror those of Hussain & Mangla (2014) in India, where ownership of luxurious items was found to be of higher priority than toilet ownership. Moreover, the application of loaned amounts proves that some property owners accord higher priority to their farmlands or to building a house than to owning a household toilet. Authorities

therefore need to be cautious in providing financial assistance to property owners for in-house toilet construction to avoid diversion of funds to purchase other items. Should there be the need for such an intervention, households rather must be entreated to dig their own pits for the latrines, and the slabs or other materials could then be provided to them at subsidised costs. This strategy, popularly called the 'slab reward' has contributed immensely to facilitating sanitation coverage in some communities in the Northern Region of Ghana as reported by [Magala & Roberts \(2009\)](#). Although this is hugely criticised in the literature ([Jenkins & Sugden 2006](#); [Kar & Chambers 2008](#)) it has promoted latrine adoption in some communities in Ghana. Intensive studies would be required to provide a holistic understanding of how subsidies can be implemented effectively in these areas to ensure that demand can be sustained over time. A development fund could be established so that the interests accrued annually could be used to support such activities, while the initial capital remained intact. The sanitation market in Nsawkaw therefore becomes essential in this regard in providing subsidised construction materials to residents. However, this needs to be decentralised from the district capital so that residents in communities farther away (e.g. Tanoso and Njau) can have ready access to these materials. Microcredit schemes could also be used to assist households who genuinely cannot raise the needed capital within a short period, but who have the capacity to pay back credit to construct in-house toilets. To ensure the sustainability of this scheme, credits could be paid to artisans to construct the facility with the consent of the borrowers, as practised in Peru, Rwanda, Uganda and Guatemala ([Chatterley *et al.* 2013](#)). Additionally, for the scheme to be successful, direct grants to households should not be promoted, and latrine designs should be affordable and acceptable to users ([Blackett 1994](#)).

The poverty of technical information on low-cost sanitation technologies for residents observed in this study confirms findings by [Jenkins & Scott \(2007\)](#). Residents, due to ignorance of these technologies and related capital costs, deem it a huge financial responsibility to install an in-house toilet. Reportedly, the capital investment requirement for VIP latrines ranges between US\$188 and US\$227 ([CWSA & TREND 2008](#); [Keraita *et al.* 2013](#)), while an even lower capital investment is required for a

simple pit latrine ([Tilley *et al.* 2014](#)). For instance, in a simple pit latrine, logs of wood can be used as a slab while straw can be used as roofing, and the superstructure made from mud reinforced with wooden poles. These local materials were observed to be readily available in these communities. However, property owners are only aware of using concrete slabs, masonry shelters and metal roofing sheets, which require higher capital investment. This can slow down latrine adoption rates, since residents would want to wait until they can raise the needed capital for expensive latrines, as corroborated by [Plan International \(2013\)](#).

Therefore, the creation of awareness of different technologies and their related costs is crucial in these communities for residents to realise that it does not cost a fortune to construct an in-house toilet. In addition, ecological sanitation systems such as double vault toilets, which make use of decomposed faecal matter as fertiliser ([Reis & Mollinga 2012](#)), could be an option, considering that a significant proportion of residents are farmers. Apart from promoting environmental sustainability, these systems would provide a direct benefit to farmers in terms of savings on the costs of purchasing chemical fertilisers, but would require extensive education and technical advice to ensure sustained patronage.

With regards to institutional capacity, the study observes that the EHSU of the Tain District Assembly is starved of the necessary logistics for effective execution of its mandate. Provision of adequate means of transportation such as vehicles and motorbikes would enable frequent visits or follow-ups of personnel to rural communities to facilitate CLTS processes. [Magala & Roberts \(2009\)](#) posited that limited follow-ups to communities where CLTS has been triggered constitute a major shortfall to CLTS implementation in Ghana. This is partly due to the lack of vehicles and motorbikes for EHOs. Addressing this need would therefore contribute to ensuring effective implementation of CLTS in the communities.

Considering the huge deficits in donor funds annually, it is imperative that the district allocates a proportion of its DACF, which constitutes a larger chunk of total revenue for CLTS implementation. Local authorities need to prioritise sanitation promotion and build the capacity of the EHSU for effective service delivery. In other districts, donor support has complemented efforts by local assemblies, thereby

accelerating improvements in sanitation coverage through CLTS activities. More donor support for CLTS implementation in the district, as in other parts of the country, should be sought by the local authorities. While a local authority pursues this option, it must also look at innovative ways of increasing its IGF to make funds available for key developmental projects. Moreover, staff at the EHSU would have to disabuse their minds of the general impression of widespread poverty among rural people and enforce sanitation bye-laws on residents who refuse to install household toilets even after CLTS activities. This would ensure that all residents become involved in improving access to in-house toilet construction.

In general, the poor human resource capacity of the EHSU in the study district is a reflection of the nationwide situation reported in the literature (Monney *et al.* 2014; Oduro-Kwarteng *et al.* 2014). Estimates based on these nationwide surveys suggest that EHSUs have a staff strength of 3,122 for all the 216 MMDAs across the country. This implies a national average of about 15 personnel per local assembly (these assemblies cover various cities, towns and villages). The CWSA, which is supposed to complement the efforts of the EHSU in rural communities, also has a human resource capacity of 216 (2011 estimate), with offices in the ten regional capitals – which is an average of 21 personnel per region. Meanwhile, the Brong Ahafo region has 27 Municipal and District Assemblies, all with rural communities requiring the services of the CWSA. The human resource capacity is grossly inadequate considering the number of communities in the Tain district and their location (land area of about 1,800 km²). Kar & Chambers (2008) recommend up to five team members for effective CLTS implementation. However, considering the staff strength (13) and logistics (two motorbikes) available for the EHSU, implementation of CLTS in the district cannot be effectively carried out. At least four teams each comprising four EHOs with each team provided with two motorbikes would be helpful in facilitating CLTS activities in the district.

Existing opportunities for improving in-house sanitation access

Despite the numerous barriers to in-house toilet construction both at the household and institutional levels, there

are huge opportunities that could serve as springboards to catalyse behavioural change. Property owners without in-house toilet access are aware of the benefits of in-house sanitation and are all desirous of owning an in-house toilet facility. Key motivating factors behind the need for in-house toilets are dominated by comfort (30%), safety (28%) but rarely health benefits (2%), thereby mirroring results from earlier studies in Ghana (Jenkins & Scott 2007) and Benin (Jenkins & Curtis 2005).

Artisans are also present in all the study communities to construct toilet facilities in houses.

Currently, based on the mean annual rent per tenant per room (US\$75), landlords could potentially raise more than half (60% to 67%) of the required capital investment cost for constructing a VIP latrine (US\$188–227) as reported by Keraita *et al.* (2013). Almost all tenants (98%) are also willing to pay extra rent charges to support installation of toilet facilities, and this provides a huge opportunity for landlords to raise the needed capital for such a purpose. This should not, however, be an opportunity for landlords to exploit tenants by charging huge monthly rents. Appropriate rent fees agreed to by both parties should be established in order not to dissuade tenants from going forth with their decision.

Moreover, residents practising open defecation and those using communal toilets are not satisfied with their current practices. This provides another crucial avenue for behavioural change in defecation practices.

The existence of institutional structures and local regulations on sanitation presents a good opportunity for sanitation promotion. These local-level sanitation bye-laws exist to ensure that all property owners provide in-house toilet facilities. Authorities can therefore sanction property owners who remain indifferent after CLTS promotion and other schemes intended to promote in-house toilet construction.

Further, donor support by AFD for the construction of a sanitation market in the district capital, Nsawkaw, is an encouraging development for promoting access to construction materials. Generally, sanitation markets ('sanimarts') provide people with a one-stop shop for a wide array of components for the construction of toilet and hand-washing facilities, including pre-fabricated squatting or sitting slabs, vent pipes and toilet cubicles. This creates the demand for

low-cost sanitation products and services to boost adoption of in-house toilets, while also providing business opportunities for entrepreneurs (Gero et al. 2014). Authorities need to seek more donor support or find innovative approaches to increasing IGFs to fund replication of sanimarts in other communities. This would ensure that property owners in communities farther away from Nsawkaw (for instance, Tanoso and Njau) who intend to construct in-house latrines would have ready access to these facilities.

In the absence of a direct household subsidy for in-house toilet construction in the study communities, efforts to promote self-financing of household toilets through CLTS as an initial strategy are more likely to succeed. This is due to the fact that areas with previous experience in, or ongoing subsidy for, household toilet schemes, as reported by Kar & Chambers (2008), are difficult terrains for promoting CLTS. Residents in such areas solely rely on authorities for capital investment for construction, and without any support fail to take initiatives on their own. However, this is not the case in the study areas, which therefore provide fertile ground for smooth implementation of CLTS.

CONCLUSIONS

The study findings shed light on defecation practices and on constraints and opportunities at both the household and institutional levels in accelerating in-house toilet construction in three rural communities in the Tain district. In-house toilets were present in less than a tenth (6.4%) of houses surveyed (249 houses) in the study, and consequently open defecation and use of communal toilets are commonplace in the communities. The few sanitation facilities available are dominated by dry sanitation systems. At the household level, barriers to in-house toilet construction identified from the study are ignorance of low-cost sanitation technologies; sheer unwillingness to construct; low priority accorded to in-house sanitation; and the perceived high costs of sanitation facilities. These factors identified from the study suggest little spatial variation in constraining factors to in-house latrine construction. Lack of information on low-cost technologies, the perceived high cost of toilets and financial constraints are thus common barriers across regions. However, all property owners without in-house

toilets expressed the need for in-house toilets largely based on comfort (30%; $n = 189$) and safety (28%; $n = 189$) but rarely on health benefits (2%; $n = 189$). Additionally, most tenants (98%) are willing to pay extra rent charges to support in-house toilet construction, and artisans are present in these communities to construct the facilities. These opportunities exist at the household level and provide suitable grounds for promoting in-house latrine adoption. At the institutional level, lack of logistics, poor human resource capacity, low donor support and poor enforcement of local legislation were identified to be key constraints. Meanwhile, opportunities such as an existing sanitation market in the district, well-defined institutional roles and local legislation provide good opportunities to catalyse improvements in sanitation.

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