The latrine ownership ladder

A conceptual framework for enhancing sanitation uptake in low-income peri-urban settings

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Abstract

Purpose – The purpose of this paper is to present the latrine ownership ladder as a conceptual policy framework to enhance sanitation uptake in low-income peri-urban areas.

Design/methodology/approach – The paper draws from literature and a case study in a Ghanaian peri-urban community to highlight the challenges that undermine sanitation uptake in low-income peri-urban areas and the prospects of various levels of facility sharing as conceived in the latrine ownership ladder approach.

Findings – The authors argue that the infrastructural and other socio-economic challenges of low-income peri-urban areas prevent some households from acquiring their own latrines. For such households, a more responsive approach to latrine promotion and prevention of open defecation would be the recognition of shared ownership regimes such as co-tenant shared, neighbourhood shared and community shared, in addition to the promotion of household latrines. The paper identifies provision of special concessions for peri-urban areas in policy formulation, education and technical support to households, regulation and enforcement of sanitation by-laws among complimentary policy interventions to make the latrine ownership ladder approach more effective.

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Originality/value – The paper provides an insight into the debate on redefining improved sanitation in the post-2015 era of the Millennium Development Goals and offers policy alternatives to policy makers in low-income countries seeking to accelerate the uptake of improved latrines among peri-urban and urban slum dwellers.

Keywords Ghana, Improved latrines, Latrine ownership ladder, Low-income countries, Peri-urban settings, Sanitation policy

Paper type Conceptual paper

1. Introduction

Improving access to sanitation and hygiene, which is directly linked to the use of improved latrines, is a crucial development agenda in low-income countries. It is a key target (Target 7.C) of the Millennium Development Goals (MDGs) (United Nations, 2013). However, the MDG Target 7.C: "to halve by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation" (United Nations, 2013, p. 46), particularly the sanitation component, is currently projected to be unachievable (JMP, 2013). While the sanitation MDG target sought to reduce the proportion of the population without access to improved sanitation from 51 per cent in 1990 to 25 per cent in 2015, 2012 figures indicate that 36 per cent of the world's population lack access to improved sanitation (JMP, 2014). Thus, 2.5 billion people globally do not have access to improved sanitation, with one billion practising open defecation. Consequently, water, sanitation, and hygiene (WASH)-related factors contribute to 88 per cent of all diarrhoeal diseases and cause more than 1.5 million deaths yearly (World Health Organisation (WHO), 2013). This stands out as a major hindrance to achieving other MDGs such as those related to poverty reduction, gender and health (Hesselbarth, 2005).

The regions of Sub-Saharan Africa and southern Asia have made very slow progress towards the sanitation MDG target. With a sanitation coverage of 24 per cent in 1990 (JMP, 2014), Sub-Saharan Africa is pursuing a target of 62 per cent by the year 2015. However, only 30 per cent of the region's population – based on 2012 data – have access to improved sanitation. Though southern Asia had the lowest sanitation coverage of 23 per cent in 1990, it has currently overtaken Sub-Saharan Africa, albeit, with an equally unimpressive coverage of 42 per cent in 2012 against a regional target of 62 per cent.

There is no universal definition for the term "peri-urban" (Iaquinta and Drescher, 2000; Hogrewe *et al.*, 1993) but it is generally associated with the "meeting place between the urban and rural context" (Tornqvist *et al.*, 2008, p. 563) or "settlements that are marginal to the physical and regulatory boundaries of the formal city" (Hogrewe *et al.*, 1993, p. 9). The term is used in this paper to reflect these adopted definitions. While the sanitation coverage in low-income countries is generally low, the case of their peri-urban settings tend to be even worse than national averages. In Ghana, for instance, 14 per cent of the population have access to an improved sanitation; 67 per cent rely on shared and other unimproved facilities while the rest (19 per cent) practise open defecation (JMP, 2014). However, a study in a peri-urban setting (Spencer, 2012) found the coverage of improved sanitation to be 8 per cent with over 60 per cent of the residents practising open defecation. Similar situations are encountered around the developing world. The UN-Habitat (2006) cites Zambia's Peri-Urban Water and Sanitation Strategy of 1999 as reporting that only 10 per cent of the country's peri-urban dwellers had access to satisfactory sanitation facilities. However, the total population that had access to improved sanitation was 61 per cent in 1990 and 59 per cent in 2000 (JMP, 2014) indicating that the situation in Zambia's peri-urban

areas was significantly poor as compared to the national average. These statistics affirm the notion that the state of environmental sanitation in peri-urban areas of low-income countries is "extremely anti-poor and represents a major challenge for the 21st century" (Paterson *et al.*, 2007, p. 902). This situation has been attributed to a number of developmental challenges associated with low-income peri-urban settings. These challenges include high population densities and the associated demand for rental accommodation that compel some landlords to change toilets to living rooms as observed in Ghana (Ministry of Local Government and Rural Development (MLGRD), 2010b). Other factors include poor physical planning, lack of formal recognition of some peri-urban settlements that makes investment in sanitation infrastructure unattractive, unreliable water supply that limits the use of some sanitation technologies and low-income levels that make sanitation facilities unaffordable to some households (Hogrewe *et al.*, 1993; Parkinson and Tayler, 2003; Ministry of Water Resources, Works and Housing (MWRWH), 2007).

These sanitation-related peculiarities of low-income urban and peri-urban areas, which make it virtually impossible for some households to acquire their own sanitation facilities (Katukiza, 2012; Schouten and Mathenge, 2010), need to be recognised in sanitation policy formulation. In this regard, a crucial question to address is what alternatives to sanitation access at the household level should be allowed or supported in order to prevent those households that cannot acquire their own facilities from resorting to open defecation, which is recognised as the riskiest sanitation practice (WHO, 2013). This paper identifies a latrine ownership ladder approach as a conceptual framework that could potentially respond to these challenges and enhance sanitation access in these areas. The paper also discusses complementary policy interventions needed to make the approach more responsive to the developmental challenges in low-income peri-urban settings.

2. Methods

This study employed a review of literature to conceptualise the latrine ownership ladder and a case study in a Ghanaian peri-urban community to demonstrate the importance and potential of the theoretical concepts behind the latrine ownership ladder approach for enhancing sanitation uptake and preventing open defecation in low-income peri-urban settings. We note that this single case study is only intended to generate evidence to the relevance of the sanitation ownership ladder approach and recognise the need for further case studies to test the feasibility of the concept in various peri-urban settings around the developing world.

2.1 Case study setting

Primary data were collected from Prampram, a peri-urban community situated along the coast of the Gulf of Guinea in southern Ghana. It has a population of 7,800 and 1,635 households whose main occupation are fishing, farming and trading (Dodowa Health Research Centre (DHRC), 2012). The state of water supply and environmental sanitation in Prampram is similar to the trend in many Ghanaian peri-urban towns. No sewerage infrastructure exists in the community; all residents depend on on-site sanitation technologies, mostly dry systems such as the traditional pit and the ventilated improved pit latrine. The practice of the extended family system and multiple tenancies of houses that are common in Ghanaian traditional communities encourage the sharing of latrines on compounds and at the communal level. Only about 15 per cent of households have access to latrines on

their compounds, including 9 per cent who share with other households (DHRC, 2012). The remaining 85 per cent depend on communal latrines or practise open defecation on the beaches and in bushes. There were seven communal latrines in the community comprising five ventilated improved pit latrines, one water closet and one pour flush toilet.

2.2 Data collection methods

Data were collected through household-level surveys and observations at communal latrines. Household surveys were orally administered to the heads of 356 households that had no latrines in their houses, representing about 25 per cent of an estimated 1,400 of such households. This sample size was considered as the largest that could be supported by available resources. The households were randomly selected from a database obtained from the DHRC that maintains a demographic and health surveillance system in the study area. The questionnaire sought to identify the factors that prevented them from having their own latrines, their current defecation practices and their perceptions about various forms of latrine sharing. Observations were also made at communal latrines to observe the patronage of the latrines between 4 a.m. and 10 p.m. each day for seven consecutive days.

3. The latrine ownership ladder concept

3.1 Rationale

The latrine ownership ladder is conceived as a framework for households pulling resources together to overcome various barriers that make it difficult for them to acquire their individual household toilets. It could be applied as a progressive approach to latrine ownership similar to the sanitation ladder. While the sanitation ladder considers different levels or complexity of technology options, the latrine ownership ladder focuses on different levels of facility sharing. The already well-known sanitation ladder concept advocates a departure from open defecation through simple, low-cost technologies to more advanced options based on the user's socio-economic and geographical context (Lenton *et al.*, 2005; Kvarnstrom *et al.*, 2011). However, some households still face difficulties in acquiring their own private latrines even at the lowest step of the sanitation ladder. In Prampram, Ghana, our survey showed that lack of funds and rights over land were the primary reasons why 83 per cent of households do not have their own latrines as shown in Table I.

In such cases, the latrine ownership ladder could provide some alternative solutions through various forms of shared ownership among households towards the ultimate goal of household ownership. The latrine ownership ladder concept reflects the modified sanitation ladder used by the JMP for its 2008 progress assessment that recognised the weakness of the improved/unimproved dichotomy. In the 2008 progress assessment, the JMP adopted a more graded scale on which shared latrines were disaggregated from unimproved ones for the first time (JMP, 2010). In furtherance to this, the JMP has recently applied the principle of "progressive realization of the human rights to safe drinking-water and sanitation" in the formulation of the post-2015 WASH targets and indicators (JMP, 2013). The vision of the JMP for the post-2015 era is to eliminate the "riskiest sanitation practice" (open defecation) a decade ahead of universal access to sanitation at home. Thus, the JMP foresees that some households would need to share facilities as an alternative to open defecation before finally owning their own facilities. Sharing of facilities is incorporated in the latrine ownership ladder concept as a short-term antidote to open defecation and should not to be seen as an alternative to the

Factor	% of households ($n = 356$)
House occupancy status	
Landlord	18
Tenant	16
Family house occupant	65
Others	1
Access to space for constructing a latrine	
No space available for constructing a latrine	34
No right over available space	30
Space readily available	36
Primary reason for not having a latrine	
Lack of funds	58
Lack of space or rights over available space	25
Other reasons	17

Source: Authors' own research

Table I.
Household attributes affecting latrine uptake in Prampram, Ghana

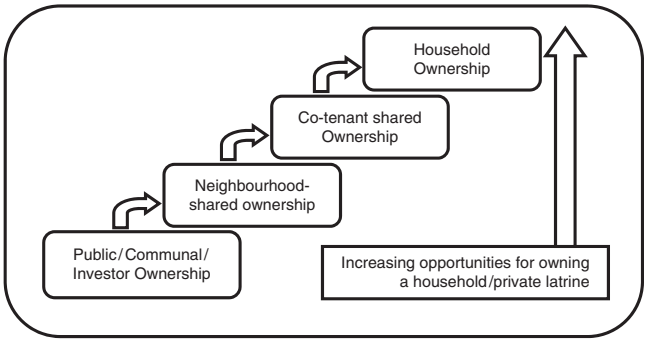
current emphasis placed on the promotion of household latrines. Rather, it is a measure for managing the risks posed to public health by those households who are unable to acquire their own latrines in the short to medium term due to one constraint or another.

3.2 Stages of the ladder

Figure 1 illustrates the latrine ownership ladder. The four stages of the ladder offer varying levels of service and perceived benefits of sanitation adoption. Salient features of each stage of the ladder and their relevance, as observed in Prampram, Ghana, are discussed below:

Stage 1 – Community/public/private-sector ownership: although communal latrines do not necessarily guarantee regular sanitation access and use, they offer the peri-urban poor an alternative to open defecation and preserve their human right to sanitation. Besides, in some extremely difficult situations, no technical option is feasible at the household level and a communal or public latrine may be the only alternative to open defecation (Hogrewe *et al.*, 1993; Burra *et al.*, 2003; Schouten and Mathenge, 2010).

Observations made at seven communal latrines in Prampram indicated that an average of 1,512 residents patronised the communal latrines each day (see Table II).



Source: Authors' own elaboration

Figure 1.
The latrine ownership ladder

Latrine ID	Capacity (users per day)[a]	Average daily patronage			Usage/capacity ratio
		Male	Female	Total	
T1	250	128	111	239	0.96
T2	200	40	115	155	0.78
T3	150	156	141	297	1.98
T4	250	107	160	267	1.07
T5	150	40	47	87	0.58
T6	250	77	68	145	0.58
T7	800	115	207	322	0.40
Total	2,050	663	849	1,512	0.74

Note: [a]Based on a recommended 25 users per cubicle per day (CWSA, 2010)
Source: Authors' own research

Table II. Patronage of communal latrines in Prampram, Ghana

Although the daily patronage represents only about a quarter of residents without access to latrines at home, the importance of such an alternative is highlighted by the observation that getting people to try a sanitation facility for the first time (or to break from open defecation) "is a necessary first step towards regular use" (Biran *et al.*, 2011, p. 860). In the absence of these communal latrines, most of the residents who patronised them would have no option than to resort to open defecation.

Communal or public toilets may be owned and operated by the public sector (a local government or a community) or a private investor. Whichever the case, a key requirement for success is achieving an acceptable balance between sustainable maintenance of facilities and affordability of user fees (Jenkins and Sugden, 2006). Where they are owned or franchised to the private sector, as recommended by Ghana's sanitation policy (Ministry of Local Government and Rural Development (MLGRD), 2010a), the pay-per-visit tariff policy is the commonest and most practical practice. However, it could be a major hindrance to regular usage (Biran *et al.*, 2011) and requires an effective regulatory framework to ensure that an acceptable level of service is not compromised to maximise profits (Water and Sanitation for the Urban Poor (WSUP), 2011).

Stage 2 – Neighbourhood-shared ownership: sometimes, the requirement for installing a latrine lies beyond the boundaries of one property. This is usually the case when multiple extensions and attachments are constructed in a manner that leaves no space for hygienic siting of a latrine. This also happens in communities where extensive reliance on groundwater requires that latrines are sited at a certain minimum distance away. In Ghana, the minimum recommended distance from a source of water is 50 m (Community Water and Sanitation Agency (CWSA), 2010). This may make it impossible for a latrine to be accommodated within the boundaries of a number of houses within a neighbourhood. However, it may be possible for neighbouring houses to negotiate the location of their respective boreholes and find a common ground to locate a latrine. In Prampram, 26 per cent of landlords who had no latrines in their houses expressed their willingness to jointly construct and share a latrine with neighbouring landlords. The majority of those who were not willing to participate in such a model of latrine ownership (70 per cent) cited potential future disputes over ownership and quarrels over operation and maintenance responsibilities as their reasons. These concerns may be addressed if the local authority facilitates any agreement among landlords and institute mechanisms for resolving conflicts.

Such toilets are meant for the exclusive use of the participating neighbours and should not be confused with public toilets or other communal facilities that are open to the general public (Water Aid, 2013). The main advantage of this model of latrine

ownership over public toilets is that they are likely to be more effectively used since they are closer to the households and accessible 24 hours a day (London School of Hygiene and Tropical Medicine (LSHTM) and Water Aid, 2010; Biran *et al.*, 2011; WSUP, 2011). In Prampram, distance to the nearest communal latrine was the main reason cited by (28 per cent of) residents who had no latrines in their homes and practised open defecation over the previous 24 hours instead of using a communal latrine. A comparison of residents living at different distances from a communal latrine shown in Table III indicates that those who lived at 150 m and beyond from a communal latrine were more likely to practice open defecation than those who lived less than 150 m from a communal latrine (odds ratio = 2.5; p-value = 0.002).

Thus, a neighbourhood-shared model of latrine ownership that minimises walking distance to latrines could increase latrine usage and reduce the practice of open defecation. Beside the benefit of close proximity, users of neighbourhood-shared latrines have a better chance to influence the design of the toilet and can make provision for prospective users with special needs such as children, the aged and the physically challenged. Nevertheless, some key requirements of success must be met. These include proper arrangements for sharing maintenance costs, ensuring that every qualified user has unhindered access at all times and that the neighbours trust themselves (Water Aid, 2013).

Stage 3 – Co-tenant-shared ownership: this ownership grade is suitable to multiple-tenant houses in built-up areas, where it may be impossible for each tenant household to acquire its own latrine due to some of the factors mentioned earlier in this paper. As shown in Table I, over 80 per cent of households in Prampram who had no latrines were either tenants (16 per cent) or occupants of family houses (65 per cent) that are shared by several family or household units. For such households, it may be possible to pull resources together to put up a common facility on a limited piece of land made available by the property owner. Unlike the case of the landlords where only about a quarter were willing to share resources with other neighbouring landlords, tenants and occupants of family houses surveyed in Prampram were more open to teaming up with other tenants or family units to construct a shared latrine on their compounds, with 65 per cent expressing their willingness to participate in such a latrine ownership model.

Obviously, the fewer the number of tenant households sharing a facility, the greater the chances of achieving similar benefits as in single household ownership. The maximum number of households to share a facility would be determined by the number of cubicles that may be built. The number of cubicles would also depend on the size of land available and the financial strength of the participating households. Where land is unlimited, continuous financial contribution over a period of time could lead to the gradual construction of additional facilities until each tenant household secures exclusive access to one cubicle.

Stage 4 – Household ownership: other things being equal, a latrine owned and used exclusively by one household is the ultimate option. While recognising the value of

Table III.
Influence of distance from communal latrines on defecation practices in Prampram

Distance of respondents' home from nearest communal latrine	Used communal latrine (%)	Practised open defecation (%)	Odds ratio (p-value)[a]
Less than 150 m ($n = 74$)	41.9	58.1	2.5
150-500 m ($n = 173$)	19.7	80.3	(0.002)

Notes: [a]The odds ratio of a person living at 150 m or beyond from a communal latrine practising open defecation to that of a person living less than 150 m from a communal latrine

some lower levels of ownership in difficult situations, various studies and reports such as Biran *et al.* (2011) and WSUP (2011) have emphasised the importance of every household owning its own latrine. Factors that may increase the willingness to invest in household-level latrines include proximity to one's dwelling place, accessibility (or being readily available), cleanliness, privacy, dignity and reputation, reduced conflict with neighbours, safety (especially at night) and increase in property value (Jenkins and Sugden, 2006; Biran *et al.*, 2011; WSUP, 2011). However, the present situation in countries like Ghana where only about 14 per cent of households have access to their own latrines indicates that other options such as those mentioned above would have to be explored in the short to medium term.

Current thinking in the field of sanitation supports the notion that household toilets provide the highest benefits and level of service. The JMP is of the opinion that households which do not have their own toilet facilities are "obliged to defecate in the open or use unsanitary facilities, with a serious risk of exposure to sanitation-related diseases" (JMP, 2006). Though this position is arguable, continuous efforts should be made at any point in time to explore the possibility of moving households from lower levels of the latrine ownership ladder to household ownership.

3.3 Implications on policy formulation and implementation

The latrine ownership ladder approach to sanitation uptake requires the support of some policy initiatives and actions to make it very effective. Such policies or actions are needed to move households and individuals up the ladder or sustain them at their position. Potential examples of national and local government policies and actions that may be of help are explained below. They include making special concessions for the peri-urban environment in development planning and implementation, provision of educational and technical support services to communities and households, appropriate use of subsidies, enhancing partnerships with the private sector and effective regulation and law enforcement.

3.3.1 Making special concessions for the peri-urban environment. Successful sanitation and environmental management in peri-urban areas requires a recognition of their special needs and challenges in planning and policy making (Allen, 2003). Such concessions may be in the form of exemptions in some policy decisions as well as flexibility in the application of planning and building regulations (Jenkins and Sugden, 2006). For instance, if the Government of Ghana insists on a policy that restricts the provision of public toilets to only lorry parks and commercial centres (MLGRD, 2010a), it would be difficult for private businesses and NGOs to obtain government support or permits to provide such facilities in deprived peri-urban communities. Rather, exemptions may be granted for difficult areas based on field assessment by an appropriate state agency. Furthermore, communal sanitation projects supported by the WSUP in Maputo in 2010 reduced the cost per facility from about US$27,000 to about US$6,400 by adopting innovative and flexible designs (WSUP, 2011). Nevertheless, minimum standards for safety should not be compromised.

3.3.2 Educational and technical support services. Development of preference and motivation to adopt sanitation are influenced by a person's dissatisfaction with his current defecation practice and adequate awareness of benefits of other options (Jenkins and Curtis, 2005; Jenkins and Scot, 2007). In view of this, it is imperative for governments to emphasise education and creation of awareness among the populace as a major focus in national sanitation policy formulation as observed in Ghana (MLGRD, 2010a). In this regard, the Community-Led Total Sanitation (CLTS) methodology offers a practical approach. CLTS is an integrated approach that focuses on triggering a

change in sanitation behaviour at the community level through a "process of social awakening that is stimulated by facilitators within or outside the community" (Kar and Chambers, 2008, p. 8). The ultimate goal is to help communities to analyse their sanitation situation and initiate a collective action to eradicate open defecation and move up the sanitation ladder.

It is also essential to support households and communities with information and technical support services, especially in the area of appropriate technology selection, siting and design of facilities (Water Aid, 2013). A practical way is to set-up information desks at local government levels to provide such services to prospective households or communities. The availability of such services should then be publicised in educational campaigns and outreaches. This form of "software" support is one of the appropriate ways of applying subsidies to communities and households (Evans *et al.*, 2009).

3.3.3 Appropriate use of subsidies. The use of public subsidies in latrine promotion is justified since the general public would benefit from the associated public health advantages (Jenkins and Sugden, 2006). However, it is important to apply subsidies in a manner that does not lead to negative effects like dependency on government or distortion of the private supply market behaviour (Jenkins and Sugden, 2006). An appropriate means is to help households overcome the challenges they face in acquiring their own facilities and in solving public service problems like excreta management at the community or municipal level (Evans *et al.*, 2004; Methra and Knapp, 2005). To be specific, subsidies could be applied in the form of infrastructure subsidies (Evans *et al.*, 2009) such as public investment in excreta disposal facilities at intervals that would minimise the cost of excreta collection and transportation from private facilities.

3.3.4 Regulation and enforcement. The large number of stakeholders involved in environmental sanitation and the diversity of their interests make government's role as a regulator very crucial. Regulation and enforcement are required to moderate the behaviour and interaction (Kingston and Caballero, 2008) among stakeholders including service providers, users and government itself (Obeng and Agyenim, 2011). Private-sector behaviour is particularly needed to be regulated to ensure an appropriate balance between tariff and service quality. In Kumasi, for example, many public toilets are run profitably by private business entities but they are not maintained hygienically apparently due to lack of regulatory controls (WSUP, 2011). Frequently, pit emptying is delayed to save money (WSUP, 2011). In such situations, prospective users cite the unhygienic conditions as a reason for practising open defecation as seen in Biran *et al.* (2011). Similarly, the activities of component suppliers and builders should be regulated to guarantee the safety of the general public.

4. Conclusion

Some households in low-income peri-urban communities are unable to acquire their own sanitation facilities due to factors such as lack of space, poor physical planning and low-income levels. In Prampram, Ghana, 83 per cent of households do not have their own latrines due to lack of funds and rights over land. For such households, the latrine ownership ladder has been presented as offering opportunities for latrine usage through various arrangements of shared ownership including co-tenant-shared, neighbourhood-shared and community or private-sector ownership. Nevertheless, the latrine ownership ladder approach requires the support of other policy interventions such as recognition of the particular needs and challenges of the peri-urban context, educational and technical support to households in latrine construction, as well as regulation and law enforcement.

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