

LIVING INFRASTRUCTURE: REPLACING CHILDREN'S LABOUR AS A SOURCE OF SANITATION SERVICES IN GHANA

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Abstract: The absence of piped infrastructure is made good in Ghana by the use of children's labour – children have become *living infrastructure*. This paper, focusing on Accra and making use of data collected in detailed earlier research [1] identifies the extent of the problem, indicates the additional health problems that the situation of *living infrastructure* generates and suggests a range of solutions that are immediately enactable. The research findings of the mid-1990s, on the evidence of the most recent literature, remain valid with no evidence of change in the quality of infrastructural provision for low income residents of Ghana and no fundamental change in sanitation behaviours. This conference – in 2008, the UN International Year of Sanitation – provides a timely opportunity to represent and to more widely disseminate these findings and to initiate a greater discussion about the role of children as *living infrastructure* and the policy challenges this presents. One hundred interviews about household sanitation practices were conducted in five areas of urban Accra, fifty with adults and fifty with children. The interviews revealed that children are central to household refuse disposal, including the disposal of human excrement, and to the collection of household water. A search of the relevant literature on infrastructure provision revealed that the role of children in refuse disposal has escaped attention, yet in the developing context, infrastructural deficiencies result in an increased task burden for children at the household level. This paper argues that such arrangements have major consequences for environmental degradation and are likely to have negative effects on educational performance. Furthermore, the ability to impose such tasks upon children weakens the political will for change in sanitary arrangements as the politically effective i.e. adults, do not themselves bear the consequences and carry the burden of the increased task load that inadequate sanitation generates.

Introduction: Children's Loads as *Living Infrastructure*

Children in developing countries play many roles in household survival¹ – roles which are very different to the expectations of childhood in the richer Northern world. And these perceptions of childhood, very often blind planners and development agencies and institutions to the consequences of childhood vulnerability for children's household taskload in the developing world – a world in which there can be very marked infrastructural deficiencies. One area in which this is particularly marked is that of household sanitation – where piped infrastructure is not present then children, the least able to resist the duties of the performance of dirty tasks, can become, in effect, *living infrastructure*.

This role of children in household sanitation was revealed in the context of more general studies of household travel organisation and household activity patterns in Accra Ghana, commissioned by the Transport Research Laboratory [2]. In those studies, interviews were conducted with forty households, twenty in the low income district of Nima and twenty in the low income district of Jamestown [3].² These interviews revealed the involvement of children in refuse disposal and water collection. The study report [2] observed that households compensated for infrastructural deficiencies in the developing urban context by the use of children's labour. Inadequate infrastructure increases the task burden of children.

¹ See <http://www.irinnews.org/report.aspx?reportid=59518> for recent information on children trafficked into domestic service in Ghana

² Nima is an area which is characterised by the high percentage of residents from Northern Ghana; Jamestown is an area largely inhabited by indigenous southerners (Ga).

In this context a search of the relevant literature on infrastructure provision was undertaken. It revealed that the role of children in refuse disposal has escaped attention. In order to compensate for this gap in the literature and to gain a better understanding of household organisation and its interrelationship with sanitation, one hundred supplementary interviews were conducted in urban Accra. Fifty interviews were conducted with children who were asked about whether, and the way in which, they performed these sanitary tasks; fifty interviews were conducted with parents who were asked about the involvement of their children in sanitary tasks.

Interviews were undertaken in four districts of Accra and one suburban district of Accra which lies under the authority of Tema: Ashaiman, Jamestown, Madina, Nima, Osu. Ten adult and ten child interviews were undertaken in each district. Ashaiman was chosen as a location for study because at the point of time at which the research commenced there were major public discussions about inadequate sanitation in this area.³

Whereas all fifty children interviewed indicated that they were involved in refuse disposal, including – for some – the disposal of human excrement, only twenty-seven adult interviews admitted to children performing these functions. Given the nature of the questions being asked, and given that all children interviewed indicated their involvement in these tasks, it seems likely that some part of this negative response is to be explained by parental concern to disguise from outsiders the distasteful tasks which children undertake.

The research found that the activity sets of children in low income Ghanaian households are likely to generate health and environmental dangers as the same personnel i.e. children, are involved in:

- a) waste disposal, including human excrement;
- b) water collection;
- c) food preparation and sale; and
- d) the care of infants.

Within Ghana, children, most particularly girl children, are brought into households as domestic servants – sometimes explicitly as servants, sometimes as a form of fostering arrangement within a kin network. The household labour of children in this context is relatively under-studied and the extent to which the dirtiest tasks are the responsibilities of the children with the weakest connection to the household is worthy of a study in itself. What is clear is that the present division of household labour between adults and children reflects both patterns of social vulnerability and infrastructural deficiencies and that consideration of the consequences of children operating as *living infrastructure* have to be factored into environmental, health and infrastructural planning.

This paper is divided into five sections including this introduction. The second section examines the present interactions between children and household sanitary organisation and indicates the environmental dangers of current practices. The third section focuses upon children's role as refuse disposers and upon the shortcomings of present arrangements. The fourth section focuses upon children's role as water collectors and explores their own view of this task. The fifth section concludes the report by indicating the policy implications of the findings and makes policy recommendations aimed at ameliorating the present unhealthy situation.

Child's Play? Household Tasks and a Child's Day

A search of the relevant literature on infrastructure provision [4] [5] [6] revealed that the role of children in refuse disposal has escaped attention, yet in the developing context, infrastructural deficiencies result in an increased task burden for children at the household level [7] [8]. In order to understand the involvement of children in the sanitation arrangements of urban Ghana, it is necessary to adopt: a

³ 6 August, 1994 Radio Broadcast, Ghana Broadcasting Corporation.

change in perspective. Whereas in the developed context, children are typically viewed as a domestic responsibility, in the developing context, children are frequently viewed as domestic resources [2] [9] [10] [3]. The inadequacy of sanitary infrastructure in developing contexts imposes a significant increase in the number of domestic tasks which have to be undertaken by households.

Table 1. Percentage of households with access to water and flush toilets on premises by relative poverty status [11]

COUNTRIES IN REGION	WATER ON PREMISES	FLUSH TOILET	ELECTRICITY	LACKS ALL 3 SERVICES
North Africa				
Urban poor	.75	.88	.86	.08
Urban non-poor	.92	.97	.97	.02
Sub-Saharan Africa				
Urban poor	.31	.20	.26	.57
Urban non-poor	.46	.32	.52	.34
Southeast Asia				
Urban Poor	.36	.67	.77	.12
Urban non-poor	.50	.88	.97	.01
South, Central, West Asia				
Urban poor	.59	.48	.71	.22
Urban non-poor	.74	.60	.92	.06
Latin America				
Urban poor	.59	.44	.84	.12
Urban non-poor	.74	.67	.98	.02

In a context where the domestic task burden is large, children are construed as resources thus children are major providers of water collection and refuse disposal services. The infrastructural deficiencies of the developing context impact heavily upon the activity patterns of children and Accra displays just such a pattern of pronounced infrastructural deficiencies.

Less than 5% of the households in Accra and Kumasi are connected to piped sewerage systems, while 21% use floodwater drains (gutters) as open sewerage that ends up in nearby water bodies. Some of the urban dwellers discharge their faecal waste into septic tanks while kitchen and other wastes from the home are usually directed into the nearest open drain. As the majority of the urban drains are open, they often serve as defecating areas for households that do not have adequate sanitation facilities. According to the national population and housing census carried out in 2000, one third of all households in Ghana use public toilets, reflecting the absence of toilet facilities in many dwelling places.[14] http://www.idrc.ca/en/ev-68337-201-1-DO_TOPIC.html

Correspondingly, children as members of the household play a central role in the disposal of human excrement in Accra. The consequent health and environmental dangers attending this practice require

further research. These environmental dangers are compounded when the dual role of children both as collectors of water and disposers of waste are considered. The same agents are responsible for getting rid of the dirty and collecting the clean thus, in the absence of good sanitation practices and available technologies which create a barrier against cross infection,⁴ a path for disease transmission is established through the personnel policies of the family.

The potentials for cross infection through the use of children in sanitary labour are increased by the fact that the social and economic responsibilities of children in the developing context are not confined to duties inside the family, for children frequently provide domestic services on a commercial basis for non-family members. The purchase of children's services for the fetching of water and the—disposal of waste often occurs on a spontaneous basis and is used to compensate for the delayed arrival of the household member who is normally responsible for performing these domestic functions. This convention of hiring the services of children for sanitary tasks on a spontaneous basis increases the number of potential cross-infection paths and thus makes a negative contribution towards neighbourhood health.

Children's economic tasks in the family are not confined to sanitary tasks for children also assist in the petty selling and trading activities of their family elders. Much of this petty trading activity involves the handling of foodstuffs, bread, iced water, street side cooked food selling, vegetables [3] [12]. The involvement of children in the sale of foodstuffs, given their key role in sanitary organisation, enhances the possibilities of disease transmission. The existing evidence shows that children have little awareness of the health consequences of their portfolio of household tasks. Even where children do have an awareness of the health consequences of the sanitation practices in which they are involved, they do not have the necessary resources to adopt 'best practice' in this respect. As with households, many schools do not have access to pipe borne water nor indeed to toilet facilities and children frequently wash their hands in a basin of water which they share with the rest of the school and which remains unchanged for the duration of the school day.

The use of own children as a source of household labour in Ghana appears on the basis of our evidence [3] [2] to be a widespread practice in Ghana. Kwesi Prah of the Department of Sociology of the University of Cape Coast [13] makes a similar observation. He notes that the use of child as performers of domestic tasks is viewed as a necessary part of the socialisation process and their portfolio of tasks is seen as providing them with the necessary knowledge and discipline for their future lives. Such physical labour is not seen as being detrimental to their physical health or educational energy. Within the interviews conducted for this research, many adults expressed opinions which were in line with those recorded by Prah, children, however, It should be noted often expressed a dislike of these tasks and claimed they imposed considerable discomfort. For many children, however, such discomfort was mediated by the knowledge that they were assisting a parent who was herself poorly resourced.

Children are also brought into households from elsewhere purely to perform the task of domestic service. Whilst a number of agencies are aware of the extensiveness of this practice [14], the parameters of such labour are not known. Such domestic service routinely includes the most distasteful sanitary tasks and may begin as early as eight years old. Even in low income households, the girl maid servants are to be found. Apart from these sanitary tasks, these girl servants fulfil the function of domestic anchors thus permitting other family members greater time and activity flexibility. One way in which girl servants provide households with flexibility is by undertaking the care and feeding of infant children. Girl maid servants are drawn from amongst the uneducated, their knowledge of disease transmission and the procedures by which it can be prevented is weak, yet their

⁴ In the Western context, hospital design and organisation gives explicit consideration to reducing the risk of cross infection by establishing separate routings through hospitals for 'dirty' and 'sterile' materials. Similarly, even where the same personnel are involved in the moving of both categories of materials, tasks are deliberately separated in time and disinfection procedures used before personnel move from one category of task to another. In the developing context, water bearers could be separated from refuse disposers even within households.

task set places them at the middle of a variety of potential cross infection paths, paths which must necessarily endanger the infants that they care for. Whilst some of these girl servants are brought into households on a strictly commercial basis, others perform the same functions under the social description of 'foster children' [15] [12] [16].

Whether girl servants are hired or fostered, the fact is that their access to education is severely restricted by the task load they have to accomplish: it is their educational time which is sacrificed in order to provide the household with the flexibility it requires to perform its other economic tasks. However, the irony exist that those members of the household who most require health education in order to protect the health of the family are the least likely to receive it. One implication of this understanding is that health education for children should not simply be targeted upon schools but should attempt through the media to reach girl servants in the domestic environment.

Doing the Dirty Work: The Role of Children in Refuse Disposal

Existing statistics indicate the highly restricted access of urban household to water closet or even KVIP facilities [17] [18] [6]. Household toilet facilities are restricted to the use of a pail or bucket or some other container which requires emptying outside of the compound, with no disposal for human waste such as sewerage pipes or cess pits existing in the majority of compounds or households. This dependence on the bucket generates the need for its emptying and the allocation of household personnel to this task where the services of the 'night soil collectors' or 'latrine boys' are too costly for households⁵. Similarly low income households rarely have access to organised refuse collection arrangements either because of the inaccessibility of such low income accommodation or because of the costs charged for such services [8]. In such circumstances, the household must transport its own rubbish to the official place of disposal or dispose of it elsewhere.⁶ Considerations of status and honour amongst adults and the relative decision making autonomy of adults results in children being directed to undertake this distasteful task.

Although the involvement of Ghanaian children in sanitation tasks has been remarked upon by Gabianu [7] (p. 10) in the rural context, apart from the work of Thompson [8], there has been no corresponding research in the urban context. Yet, the level of children's involvement is common knowledge:

⁵ See the Accra News, 08/01/2008 on the challenge to the municipality's use of "latrine boys" as a mode of sanitation organisation;

"JUSTICE: ACCRA "LATRINE BOYS" BEFORE THE SUPREME COURT.

The employment of people to dispose of human excrement from bucket latrines in pans carried on their heads may soon be a thing of the past in Accra if a case brought against the city council is successful. On 5 February Ghana's supreme court is due to begin hearing a suit filed by local lawyer Nana Adjei Ampofo seeking to ban the practice on the grounds that it is degrading and cruel and in contravention of the constitution.

The hearing represents the culmination of a lifetime battle by the legal practitioner to outlaw the use of so-called "latrine boys", who suffer discrimination due to their line of work as well as health and alcohol-related problems. However, when the case was filed in 2006 some workers expressed opposition to the move for fear of losing their jobs.

There are an estimated 100 latrine boys working in the capital and 1,000 countrywide."

⁶ Even then it should be noted that at the time of the research the household had to pay a fee to legally deposit its rubbish. Accra then operated a Pay As You Dump scheme. Thompson's research [8] in Dansoman based on interviews with sixty households indicates that many low income households which had previously used the official dumps begun to 'manage their refuse disposal domestically' when the Pay As You Dump scheme was introduced.

“Our waste disposal leaves much to be desired”. One eider said in answer to our question. “There is no system of waste disposal at all. Waste is supposed to be dumped in one place. But as it is children who carry the rubbish to the dump, they do not always throw ft in the right place. When they are in a hurry to go and play, when they are late for school, or are tired or angry, or hungry, or just simply naughty, they may even throw it many meters away from the dump.”

Evidence from the domestic organisation study of the Nima and Jamestown districts of Accra [2] from the study of sanitation arrangements in Dansoman, Accra by Thompson [8] indicates that the involvement of children in refuse disposal is widespread. In this supplementary study, fifty adults were asked who had the major responsibility for refuse disposal in their household chosen at random within five urban districts. Table 2 below presents the results of these interviews.

The rate of child involvement in refuse disposal emerging from these interviews with adults is 54%, indicating that children are the major performers of these tasks. However, evidence from other studies [8] [2] [19] suggests that even this figure may be a substantial underestimate of children’s involvement. Thompson [8] established that children under eleven years performed the task of refuse disposal in 85% of those households which disposed of their own refuse. in the remaining households the task was either performed by teenage children or hired help; no adult member of the household performed this task in any of the households Interviewed. In order to discover the nature of children’s involvement in refuse disposal, fifty interviews were then conducted with children, as opposed to adults, who admitted to involvement in this task.⁷

Table 2. Adult provided information on role of children as refuse disposers

DISTRICT	NO. OF ADULTS WHOSE CHILDREN PERFORM TASK OF REFUSE DISPOSAL	NO. OF ADULTS CLAIMING CHILDREN DO NOT PERFORM THE TASK OF REFUSE	TOTAL
Ashaiman	9	1	10
Jamestown	3	7	10
Madina	4	6	10
Nima	6	4	10
Osu	5	5	10
Total	27	23	50

Children’s accounts of whether they performed refuse disposal and the age at which they started doing so are provided in Table 3 below. The very young ages at which children begin this task removes from them the ability to resist the task and although our evidence demonstrates that children do not like performing these tasks they are socialized into the inevitability of so doing [19].

Table 3. Children’s accounts of the age of responsibility for refuse disposal

DISTRICT	FREQUENCY	AGE AT WHICH RESPONSIBILITY COMMENCES	
		AGE	FREQUENCY

⁷ There is a marked reluctance on the part of interviewees to answer questions on about refuse disposal given the illegality of household practices and the risk of prosecution at the hands of the authorities. Thompson [8] experienced similar problems for the same reason.

Ashaiman	10	-5 6 7 8 9 10+ No response	- - 4 2 1 2 1
Jamestown	10	-5 6 7 8 9 10+	2 2 - 1 1 4
Madina	10	-5 6 7 8 9 10+	1 2 2 5 - -
Nima	10	-5 6 7 8 9 10+	- 1 2 3 4 -
Osu	10	-5 6 7 8 9 10+	2 1 3 1 1 2
Total	50		50

Whereas in the domestic organisation study [20] respondents indicated that neighbourhood children received a fee for undertaking this task of refuse disposal for households other than their own, in this research study, this 'fee' was discussed by children as a 'gift'. Both studies revealed that children do undertake sanitary duties for households other than their own but whereas the first study indicated a straight commercial relationship, this second study indicated that there was substantial social disguise around this relationship amongst certain parts of the community. There appears to be some social discomfort around direct bargaining between children and adults, particularly, in the taboo area of sanitation [7].⁸

⁸ There are strong taboos against the handling of human excrement in Ghanaian culture [7] (p. 12), such taboos are likely to produce an under- recording of the extent to which households conduct sanitary tasks such as faeces and urine disposal and to result in a denial of any payment being made for these services. However,

Case of fourteen-year-old school boy living in Ashaiman:

He is responsible for getting rid of the household waste including human excrement and waste food. He does not get paid for this as he performs the task for his mother, however, he also performs this task for other people in the neighbourhood on occasion but claims he receives no payment or reward for this.

Although evidence from a number of sources indicates the involvement of children in the disposal of human and food waste, there was a general reluctance on the part of both adults and children to discuss this aspect of refuse disposal. However, some households did indeed indicate that the allocation of such tasks to children was a normal part of household routine.

Case of the twenty-six-year-old Akan ice-cream seller with two children living in Ashaiman:

The eldest child aged 8 was responsible for disposing of household waste, including human excrement, *“just behind the house.”* The household regarded seven years of age as the appropriate point at which children should start to undertake such tasks. Weak legislation and enforcement are seen by the household as contributing towards this division of labour: *“if the government tell us not to dispose of refuse behind the house but to take it to some far away place, then the truck would be better but now that it is just behind the house I prefer the children to do that.”*

Children’s accounts of when they started having responsibility for the disposal of household refuse and adult perceptions of the appropriate age for the allocation of this task cluster around the age of seven.

Case of eight-year-old school girl living in Ashaiman:

She is responsible for getting rid of household waste including human excrement. She disposes of the refuse *“just behind the house. It doesn’t take me any time at all.”* On health awareness, the child claimed that *“improper disposal does not cause any harm. I prefer doing the task myself. The truck would charge my mother some money.”*

Case of ten-year-old school girl living in Ashaiman:

She is responsible for getting rid of household waste including human excrement. *“Behind the house there is a place of disposal, it doesn’t take me any time at all”.* This schoolgirl, like many other children responsible for refuse disposal, undertakes this task at a point of the day when few people are about: *“They tell us to wake very early and perform the task of refuse disposal so that we are not late to school.”*

Interestingly, those cases where households directly discussed the disposal of human excrement by children were all drawn from Ashaiman. It is likely that the contemporary public discussions about the poor quality of sanitary provision in Ashaiman had the effect of breaking some part of the power of the taboo around the discussion and management of human excrement at the household level. It has become permissible to talk of that which must have happened previously but which had to be concealed. Amongst the households interviewed, there are other cases in which, although no respondent directly indicates that children are involved in the disposal of human excrement, it seems likely that such a practice exists. For example, in Madina an elderly woman trader relied on her young great grandchildren as the principle source of refuse disposal.

Case of the seventy-year-old female petty trader with three foster (great) grandchildren living in Madina:

given the strong taboos surrounding this issue, it is likely that payments are required before services are proffered.

The three grandchildren (aged 8, 5, 3) were responsible for disposing of household waste, including decomposed food, “just behind the house in a hole.” The children are not paid for performing these tasks because “they are my grandchildren⁹ and there is no need for paying them for their household duties. I prefer the task being done by my (grand)children because I can’t afford the cost of the truck”.

This refuse strategy of burying household rubbish in a hole behind the house was operated in combination with a domestic level burning technology:

improper disposal can cause diseases but to avoid it, I make sure I burn the refuse in the hole every weekend. I make sure they do the task properly and also talk to them to avoid littering the refuse around the hole.

Such a burning technology would be compatible with the sanitising of human faeces. Yet another case in which strong suspicions are raised about the refuse disposal tasks of a child was found in Nima:

Case of the ten year old school girl in Nima:

This school girl was responsible for disposing of household waste including poultry faeces. She disliked this duty. “I prefer the truck because I get tired when I carry it myself.”

It seems probable that a child who is already responsible for the task of animal or poultry faeces disposal is likely to acquire the task of human faeces disposal in a household which does not enjoy adequate sanitation.

In addition to interviews with household members responsible for refuse disposal or household members involved in allocating others to this task, an interview was conducted with a refuse truck operator. In this interview, it emerged that garbage truck operators frequently encounter human excrement wrapped in polythene bags amongst the general garbage. Such dumping of human excrement within the general garbage is illegal and households, both children and adults, have an interest in concealing their activities in this respect from authority.

Interview with garbage truck operator:

One of the problems faced by garbage truck operators is that some households dispose of human excrement in their own domestic garbage containers which are subsequently emptied into the truck. Such faeces are wrapped in polythene bags and placed in the bins making the working environment of the garbage collectors hazardous.

It can be assumed that if households are placing excrement wrapped in polythene in their own private garbage bins, a similar process is occurring at the larger private and municipal dumps. Indeed, many of the accounts of refuse duties performed by children focus upon “enuowra” i.e. unspecified rubbish blown into and around a compound by the wind, and polythene bags. It seems likely that the term “enuowra” in combination with polythene bags is used as a disguise both at the level of language and physically to conceal the dumping of human excrement.

As the evidence from the garbage truck operator indicates, the hygiene perspective of urban households is largely focused on removing rubbish from the home at the cost of polluting the neighbourhood. Maintaining a clean home is seen as disease reducing without sufficient consideration being paid to the development of neighbourhood health hazards. The spread of disease from neighbourhood facilities back into the home is under-considered.¹⁰ The main objective of households

⁹ The Akan expression used ‘was “me nanaa nomu” which is used for grandchildren, great grandchildren and great great grandchildren. “The truck” refers to private refuse collection arrangements, operating under the supervision of the Amasaman District Council, in the Madina area.

¹⁰ The outbreak of plague in India which occurred at the time of this research has been attributed to poor refuse disposal practices. An international concern about the connection between plague and refuse disposal arrangements has developed in the wake of the re-emergence of plague. In particular, Nigeria tightened the enforcement of its regulations which require citizens to be involved (in a regular basis in neighbourhood ‘clear ups’.

is to dispose of refuse without encountering any punitive consequences in a context where disposing of refuse in a sanitary and legal fashion is neither easy nor cheap.

In this context, a more urgent household need is to conceal routine sanitation practices from others because of the legal consequences and social taboos that attend these tasks. Given this perspective, it is clear that the use of children reduces the visibility of household sanitary practices. It also reduces the consequences of any interaction with authority – if a child is apprehended whilst undertaking such tasks, the responsible adult can deny directing the child to perform this duty [21].¹¹ In order to reduce visibility further, children are instructed to undertake the task before the working day begins and people are on the street. The timing of task is used to reduce the visibility of the illegality or low social status of the duty. Children perform the task at a time which is inconvenient to them i.e. early in the morning, however, it is precisely the directability of children which ensures that this is the period in which dirty tasks are performed and the manner of their performance concealed from authority.

Table 4. Time of day of task performance and reasons for timing

NO.	DISTRICT	AGE	TIME OF DAY	REASONS GIVEN/COMPLAINTS
A1	Ashaiman	7	Very early in morning/afternoon	
A2		7	Morning	
A3		8	Morning/afternoon	
A4		9	7 a.m.	
A5		10	7 a.m.	
A6		10	Morning/afternoon	
A7		13	7.30 a.m.	
A8		13	6.30 a.m.	
A9		14	6.30 a.m.	
A10		14	7.30 a.m.	
J1	Jamestown	8	Morning	A favourable time
J2		10	Morning	A favourable time
J3		10	Morning	Because at these times the refuse are ready in the basket for disposal
J4		11	Morning	
J5		12	Morning	
J6		12	Morning	It is not favourable to me
J7		12	Morning	
J8		12	Morning	
J9		14	Morning	
J10		14	Morning/evening	
M1	Madina	7	Evening	

¹¹ The use of children to perform tasks which fall on the wrong side of the law but which are necessary for household survival has been discussed at some length in the European context under the label survival crime.

M2		8	Morning/occasionally afternoon	Forced by parents to wake early in the morning to perform task
M3		9	Morning	A favourable time
M4		9	Morning	No reason
M5		9	Evening at around 5 p.m.	
M6		10	8 a.m. or 10 a.m.	It is not always favourable
M7		10	7.30 a.m.	7.30 is only on vacation. When school reopens I do that in the afternoon
M8		11	6.30 a.m.	
M9		12	6 a.m.	This is done on Saturdays only
M10		13	6.30 a.m.	
N1	Nima	8	Morning	
N2		8	Afternoon	I do that after school
N3		9	7 a.m.	
N4		10	Morning	
N5		10	7 a.m.	
N6		10	6 a.m.	
N7		11	Morning/evening	
N8		11	Morning/evening	
N9		14	6 a.m.	
N10		14	Morning	
O1	Osu	5	Morning	
O2		7	6 a.m.	A favourable time
O3		9	Morning	Task is performed before school
O4		10	Morning	Task is performed before school
O5		10	7 a.m.	Task is performed before school
O6		10	6.30 a.m.	
O7		14	Morning/evening	
O8		14	Evening	Task is performed after school
O9		16	Morning/evening	
O10		17	Evening	Because I do not want to pay at the final place of disposal

In the same way that time of day is used to conceal the refuse disposal tasks that children are undertaking, the proximity of the place of disposal can also serve to disguise the exact nature of the task children are performing. Many children are disposing of refuse in locations which are very close to their home, some of these are an urban variety of the traditional rural practice of burning holes.

Traditionally, communities were viewed as being obliged by the gods to keep the environment clean as a mark of respect for the deities. Social rules on this issue were very strong and recently that set of rules around the sacredness of forests has been much remarked upon as a traditional rule which performed the function of environmental protection. A similar protocol extended to the disposal of personal rubbish, here the practice in many communities was to dig a burning hole in which waste matter could be safely and aesthetically disposed of.¹² This rural practice now occurs in urban space, however, it is illegal and those using the practice must seek to conceal it from authorities. For this reason burning holes are frequently set at a small distance from the home of the user, thus allowing the user to disown the facility when authorities intermittently seek to enforce urban regulations. Whilst there are many negative characteristics of burning holes, it is questionable whether these are worse than the official dumps which do not receive regular treatment. Indeed, it may be that the worst consequence of burning holes is produced by the need to conceal their use, a requirement which results in the use of child labour for refuse disposal.

Children's accounts of where they take refuse indicate the heavy use of central collection points (Table 5).

Table 5. Place of disposal and reasons for choice of location

NO.	DISTRICT	AGE	PROXIMITY	COST	REASONS GIVEN/COMPLAINTS
A1	Ashaiman	7	Central dump, 15 mins walk to and fro		
A2		8	Just behind my house		It doesn't take me any time to perform the task
A3		8	At the back of the house		It takes a short time to perform the task
A4		9	Central dump, 20 mins walk to and fro		
A5		10	Behind the house		It doesn't take any time at all
A6		10	Near motorway		
A7		13	Central dump, 15 mins walk to and fro		
A8		13	Central dump near motorway		
A9		14	Central dump near motorway		It is very far from home
A10		14	Central dump near motorway		
J1	Jamestown	8	Near the beach – 2 mins walk to and fro	20 cedis	
J2		10	At the beach	20 cedis	Very close to my house
J3		10	Near the beach – 10 mins walk to and fro	20 cedis	It is the central collection point
J4		11	Near the beach	20 cedis	The central dump is there
J5		12	Near the beach	20 cedis	The central container is there

¹² Personal communication, Alex Kpemasor, Alavanjo, Volta. 23/10/1994.

J6		12	Near the beach – 5 mins walk to and fro	20 cedis	The central container is there
J7		12	Near the beach	20 cedis	The central container is there
J8		12	Near the beach – 2 mins walk to and fro	20 cedis	The central container is there
J9		14	Near the beach	20 cedis	The central container is there
J10		14	Near the beach	20 cedis	The central container is there
M1	Madina	7	In a hole in the house		Hole is dug purposefully for refuse and refuse is burnt in the hole
M2		8	On an undeveloped plot in front of the house		We have not registered for truck to carry our refuse
M3		9	Refuse disposed of beside the street near the house		Have not registered for truck to perform the task
M4		9	In a bin in the house		A truck collects it on its rounds
M5		9	A 20 min. walk to and fro		
M6		10	A 40 min. walk to and fro – far from home	40 cedis	The house is not registered for truck to perform the task
M7		10	In front of the house on an undeveloped plot		
M8		11	30 mins walk to and fro	40 cedis	
M9		12	30 mins walk to and fro	40 cedis	
M10		13	20 mins walk to and fro	40 cedis	
N1	Nima	8	In a central dump nearby	20 cedis	That is the central collection point
N2		8	In a central container but not at one particular place	20 cedis	They are the central collection points
N3		9	In a central container not far from home	20 cedis	That is the central collection point
N4		10	A short distance from home in the central container	20 cedis	That is the central collection point
N5		10	10 mins to and from the central container	20 cedis	That is the central collection point
N6		10	In a central container	20 cedis	That is the central collection point
N7		11	In a central container	20 cedis	That is the central collection point
N8		11	10 mins to and from the central container	20 cedis	That is the central collection point
N9		14	It takes a short time to get there to the central container	20 cedis	That is the central collection point

N10		14	Some distance from home in a central container	20 cedis	That is the central collection point
O1	Osu	5	At the central container		That is the central collection point. However I don't pay. My refuse are usually not very many
O2		7	In the central container	20 cedis	That is the central collection point also when refuse is stored at home it can get rotten
O3		9	In the central container	20 cedis	That is the central collection point
O4		10	In a central container	20 cedis	That is the central collection point for everybody
O5		10	Central container, very small time taken	20 cedis	That is the central collection point
O6		10	At the central container	20 cedis	That is the central collection point
O7		14	In a central container		That is the central collection point
O8		14	In a central container	20 cedis	That is the central collection point
O9		16	In a central container		That is the central collection point
O10		17	In a central container		That is the central collection point but I avoid payment because I go there late

Taking on board the earlier remarks of Gabianu [7] and the evidence of Thompson [8] on the likelihood of children depositing rubbish in locations other than the official dump and noting the evidence of refuse deposited in the rainwater drainage system across Accra, it seems probable that the children's accounts provided above of where they deposit the refuse they are responsible for disposing of are not in fact accurate. There is both a financial incentive i.e. the spending of the disposal fee, and a time incentive i.e. 30–40 minutes journey, for children to dump at locations other than the officially proscribed points. Concern about being apprehended for such illegal activities was general amongst the children interviewed and must be considered when assessing the accuracy of their replies. This material collected on the involvement of children in refuse disposal and upon household sanitary practices suggests that there is a need for a larger and more detailed study which could be used to inform the development of appropriate sanitation policies and educational programmes in the low income neighbourhoods of developing countries. Whilst there are certain features of the Ghanaian context which clearly promote the use of children in refuse disposal tasks such as the widespread practice of fostering out the physically able young to the physically disabled old, it seems probable that what is true for Ghana is true for many other contexts. Children bear the greater part of the burden of inadequate or inappropriate infrastructural provision both as the substitute providers of service and as the category which is most vulnerable to disease and death.

'Closing the Tap': The Social Cost to Children of Inadequate Water Provision

Just as the absence of developed urban sewage facilities imposes an additional task burden upon households and most particularly upon the children of households, so does the absence of pipe borne

water. However, even where homes have access to pipe borne water, the excess of demand over supply results in rationing of water with each area in turn being subject to a period in which the 'town' tap is closed. Whilst some households have water storage tanks through which they can better manage the irregularities of supply, the majority do not. The involvement of children in collecting and transporting water in rural Africa has already received substantial documentation [22]. However, the role of children in urban water provision has received substantially less attention [17]. The assumption of ready water availability in the urban context has resulted in a failure to investigate the role of children in urban water provision, yet, the intermittent nature of urban water supply to each and every area requires women and children to walk in search of water in other districts when the supply fails. Walking in search of water and transporting it home is a commonplace urban experience, not simply a rural phenomenon.

The need to search for water in other districts places many constraints on the activity patterns of those household members whose task it is to perform this duty. The household member has to locate and ensure a place in the queue at whatever public tap that is functioning. The times at which such taps function may be, and frequently are, at unsocial hours such as late in the night or very early morning when the overall pressure on the water system is reduced. Collecting water under such circumstances is an arduous task which necessarily disturbs a child's pattern of rest. It should be noted that the fact that the household cannot determine when it collects water (as this depends on when the pipe is open) reduces its ability to control the visibility of children's involvement in the task. However, the relationship between water availability and unsocial hours indicated here clearly lessens the visibility of children involved in this task.

Although this research asked no direct questions on water collection by children, its main focus being upon refuse disposal, seven children identified water collection as a household task which they performed in addition to refuse disposal. The youngest child performing this task was eight years old,

Female aged 14 living in Ashaiman:

(In addition to refuse disposal) I wash kitchen utensils and fetch water.

Female aged 10 living In Ashairnan:

(In addition to refuse disposal) I fetch water, help in cooking and wash utensils.

Male aged 11 living in Madina:

(In addition to refuse disposal) I do other activities like fetching water but I don 't clean kitchen utensils.

Male aged 10 living in Madina:

(In addition to refuse disposal) I fetch water and clean the kitchen utensils.

Female aged 10 living in Madina:

(In addition to refuse disposal) I sometime fetch water in addition to cleaning and sometimes clean the kitchen and wash utensils.

Male aged 14 living in Nima):

(In addition to refuse disposal) I fetch water for my mother.

In addition there were a number of interviews where the child's description of the domestic duties undertaken was consistent with the fetching of water although this was never directly stated. The general description of helping in the kitchen, given the nature of infrastructural deficiencies in low income areas, most probably includes the specific duty of water collection and disposal.

Female aged 10 living in Jamestown:

(In addition to refuse disposal) I help in the kitchen too.

Female aged 14 living in Jamestown:

(In addition to refuse disposal) I wash utensils and help my mother in the kitchen.

Male aged 10 living in Jamestown:

(In addition to refuse disposal) I clean the kitchen and wash.

Female aged 8 living in Nima:

(In addition to refuse disposal) I wash kitchen utensils.

The 'dangerous' connection between children's involvement in a) refuse disposal, b) kitchen duties such as water collection, water disposal and washing utensils and c) the selling of food to the public also emerged from the interviews. Children's involvement in the sale of food is a cultural norm in Ghana. Iced water, prepared and sold at the roadside by young children, has been identified as a major component in the transmission of water-borne diseases [17]. Yet hygiene education rarely focuses on the occupational roles played by these young workers.

Male aged 12 living in Jamestown:

(In addition to refuse disposal) I sometimes help in the kitchen and also help my mother in the selling of sugar cane.

Male aged 9 living in Jamestown:

(In addition to refuse disposal) I help in selling sugar cane at home.

Male aged 12 living in Jamestown:

(In addition to refuse disposal) I sell bananas and clean utensils.

Male aged 10 living in Nima:

(In addition to refuse disposal) I sell Fanti kenkey for my mother.

Evidence from other studies in this set [2] indicates that a direct question on water collection would have produced a much higher child involvement figure.

Table 6 Children's domestic duties in Nima and Jamestown
(taken from [2])

NO.	DISTRICT	REFUSE DISPOSAL	WATER COLLECTION	KITCHEN DUTIES	FOOD SELLING
N1	Nima	Sweeping	Carrying of water	Washing	
N2		Running errands in neighbourhood for a fee?	Running errands in neighbourhood for a fee?	Help in tidying the home	
N3		Running errands for wife?	Carrying of water	Tidying of home	
N4		Elder child runs errands?	Elder child runs errands?		
N5		Helping in household chores?	Helping in household chores?	Helping in household chores	Helping wife to sell wares
N6		Disposal of refuse/running errands	Carrying water	Sweeping	
N7		Disposal of refuse	Fetching of water	Sweeping	
N8		Helping in household chores/running errands?	Helping in household chores/running errands?	Household chores	

N9		Helping in household chores/running errands?	Helping in household chores/running errands?	Household chores	Helping mother sell her goods?
N10		Elder child runs errands?	Elder child fetches water		
N11		Refuse disposal	Fetching water	Tidying up of home	Helping mother to sell food
N12		Refuse disposal	Carrying water		
N13		Tidying up of home?	Fetching water	Preparing meals	
N14		Running errands/running errands for others for a fee?	Fetching water	Sweeping	
N15		Refuse disposal/running errands for neighbours for a fee?	Carrying water/fetching water for neighbours for a fee	Tidying up the home	
N16		Refuse disposal	Fetching water	Meal preparation/sweeping	
N17		Refuse disposal/running errands for neighbours for a fee?	Fetching water	Preparation of meals	
N18		Refuse disposal	Fetching water		
N19		Tidying up the home?	Fetching water	Preparation of meals	
N20		Emptying refuse containers	Carrying water	Sweeping	Helping wife to sell?
J1	Jamestown	No tasks	No tasks	No tasks	No tasks
J2		Throwing away garbage	Fetching water	Sweeping, washing dishes	
J3			Fetching water	Washing dishes	Selling cooked food
J4		Not applicable	Not applicable	Not applicable	Not applicable
J5		Empty chamber pots	Fetching water	Washing dishes, sweeping	
J6		Sweeping?		Washing dishes and clothing	Helping to sell bread and popcorn
J7		Throwing away garbage		Washing dishes	Selling iced water

J8		Not applicable	Not applicable	Not applicable	Not applicable
J9		Sweeping?		Washing dishes and clothing	Selling milk powder
J10		Throwing away garbage		Washing dishes and clothing, cooking	Selling rice porridge
J11		Throwing away garbage	Fetching water	Washing dishes, sweeping	
J12		Throwing away garbage		Washing, sweeping	
J13					Helping to sell?
J14		Run petty errands?		Washing, sweeping	Helping to sell?
J15		Run errands?	Run errands?	Do not wash dishes or sweep	
J16		Run errands/sweep?	Run errands?		
J17		Throwing away garbage	Minor jobs?	Minor jobs?	Minor jobs?
J18		Not applicable	Not applicable	Not applicable	Not applicable
J18		No tasks	No tasks	No tasks	No tasks
J20		Sweep?	Fetching water		Helping mother to sell?

On the evidence presented there can be little doubt that Ghanaian children are heavily involved in compensating for the infrastructural deficiencies which accompany the constrained financial resources of their developing economy. Whilst the consequences of this task load for the health and education of the individual child require consideration, it is equally important to consider the consequences of this intersection of tasks and disease transmission paths for public health. More comprehensive research on the relationship between sanitation tasks and children's health could usefully be investigated.

Conclusion: Policy Implications and Recommendations

This research has demonstrated that children in urban Ghana are currently involved in household sanitation tasks in a manner that maximises the possibilities of cross infection. These sanitation arrangements which depend on the labour of children have major consequences for environmental degradation and are likely to have negative effects on educational performance. It is argued that children's knowledge of disease transmission is inadequate given the sanitary responsibilities they carry and that the resources necessary to achieve 'best practice' even where such knowledge exists are poor.

Any policy designed to promote health education for children in Ghana can not assume that the school room is a sufficient target – for girl servants, who do not attend school, are an important feature of Ghanaian household organisation. Whilst these girl servants, given their role in sanitation, food preparation and the care of infants, are the members of the household who most require health education in order to protect the health of the family, they are the least likely to receive it. One implication of this understanding is that health education for children should not simply be targeted upon schools but should attempt through the media to reach girl servants in the domestic environment.

The message from our research is that sanitation and hygiene education must be organised at a neighbourhood level and not simply aimed at instilling good practices in the individual. Individuals

cannot of themselves maintain good practices without the appropriate resources and social support for their maintenance. The accumulation of rubbish and refuse in urban communities frequently occurs as a consequence of municipal failures to provide the facilities and the routine management of those facilities which they are committed to by law. Frequently such failure creates an authority vacuum in the managing of refuse: municipalities do not have the funds necessary to perform the tasks regularly and nobody else has the authority to deal with the immediate problem.

The establishment of protocols which permit residents to undertake controlled burning of refuse when such municipal failures occur could do much to alleviate the situation. The present situation where regulations exist about where dumping is permitted but the clearing of such dumps is intermittent encourages the development and expansion of bad sanitary practices, practices which necessarily involve children as communities seek to reduce the visibility of their illegal sanitary practices. We argue here that sanitation arrangements which depend on the labour of children have major consequences for environmental degradation and are likely to have negative effects on educational performance. Furthermore, we argue that children's knowledge of disease transmission is inadequate given the sanitary responsibilities they carry in this context and that the resources necessary to achieve 'best practice' even where such knowledge exists are poor. The research demonstrates that the same children conduct both 'clean' and 'dirty' sanitary tasks for the household. We suggest that health education programmes be promoted that advise households to separate out these tasks and simultaneously ensure that the same individual does not undertake 'clean' and 'dirty' tasks. Given the role of children in household sanitation, it is important that health education and sanitation 'clean up' projects focus explicitly on children and gain their active participation and involvement.

The ability to impose sanitation tasks upon children weakens the political will for change in sanitary arrangements as the politically effective i.e. adults, do not themselves bear the consequences and carry the burden of the increased task load that inadequate sanitation generates. Children currently bear the burden of inadequate or inappropriate sanitary provisions: their contribution should be audited as standard practice in infrastructural planning in developing countries.

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