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Beyond Distance and Time: Gender and the Burden of Water Collection in Rural Uganda

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Abstract: *This paper explores the gender differences in water collection in Makondo Parish in Uganda as a case study. Our analysis is based on data collected from a cross-sectional survey, in-depth interviews, focus groups, and participant observation in the study area. This data confirms that children and women are most burdened by water collection. Unless it is for commercial or work-related reasons or when there is a long drought, men rarely fetch water. Our study further reveals that children and women walk distances of less than half a kilometre to more than two kilometres on rugged and hilly roads and paths, carrying water on their heads or by hand. They spend a lot of time queuing at "improved" water sources, and suffer from health complications such as prolonged fatigue, chest pain and headache as a result of carrying water. Children and women are also distressed by the dangers of verbal and physical assault and rape at both "improved" and "unimproved" water points. We contend that whereas time and distance remain important determinants of the burden of water collection, socio-cultural, environmental and health-related conditions are equally critical in understanding the troubles that children and women face while collecting water in rural developing communities.*

Keywords: Gender, water collection, distance, time, burden, Uganda

1. Introduction

In most parts of the developing world, access to water, an essential human need, is a huge challenge. Poor access to water resources is a threat to the health and livelihood of communities, especially vulnerable women and children (UNDP 2006; Roy and Crow 2004). The WHO/UNICEF Joint Monitoring Programme (JMP) estimates that about 780 million people do not have adequate access to safe water¹, and the majority of these live in Sub-Saharan Africa (WHO and UNICEF 2012). Access to safe water by poor women and men in Sub-Saharan Africa is associated with the high use of "unimproved"² sources such as ponds or rivers, unprotected dug wells and unprotected springs, especially in rural areas where it currently stands at 19 percent (WHO and UNICEF 2012:6). In Uganda, inadequate access to drinking water is also a major determinant of ill-health (GOU³ 2010:3). Although access to water has progressed in the country in the past 10 years, access to safe water in rural areas is still poor, and currently stands at 64 percent (GOU 2012:65).

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Inadequate access to water is due to a combination of factors, of which poor water governance, poverty and social inequality remain central (Plummer and Slaymaker 2007; Rogers and Hall 2003; Tropp 2005; UNDP 2006:5; UN-Water 2005). Gender, a socio-cultural aspect, shapes how men and women access or benefit from scarce water resources (Cleaver and Hamada 2010; Coles and Wallace 2005; Crow and Sultana 2002:712; Roy and Crow 2004:2). Poor women and men often struggle to collect water from various water points through providing labour through others, or physical labour that is regarded as "free" (Cleaver and Hamada 2010:37; Coles and Wallace 2005; Franks and Cleaver 2007:301). This labour is often a reflection of the gender division of labour in households.

Prior studies on the burden of water collection in developing communities have focused on who collects water for various uses, how much time water collection consumes (or the value of time saved), and distance moved to water sources. For example, it is known that women and girls bear the responsibility of collecting and providing water in households (e.g., Bennett et al. 2008; Crow 2001; Ghosh 2007; Green and Baden 1994; Ray 2007:427; UNDP 2006:10). The same groups spend several minutes a day (e.g., Arku 2010:238; Blackden and Wodon 2006) or five or more hours (e.g., Roy and Crow 2004; Sorenson et al. 2011:1523) moving to and from water sources. On average, they spend 2 to 20 hours a week collecting water (Boone et al. 2011:1832; Crow and Sultana 2002:712; WHO and UNICEF 2012:31). The distance to water sources ranges from a few metres to 8 kilometres depending on their location and environmental hazards such as droughts (e.g., Arku 2010:239; Crow 2001; Mazvimavi and Mmopelwa 2006:717; Thompson et al. 2001; UNDP 2006:35).

Few studies have examined the other social and health-related conditions that characterise water collection from a gender perspective. In this paper, we examine the burden of fetching water, taking into account other critical socio-cultural, gender-related and environmental conditions that emerged from a rural area in Uganda. We begin by describing the study area in Section 2, followed by the methodology in Section 3. We explore water collection and its related social conditions in Section 4, taking into consideration the gender roles and responsibilities for fetching water,

1. Defined by JMP as the ability of communities to use 20 litres of water per person per day from an improved source that is not more than 1km away from their dwelling (WHO and UNICEF 2000).

2. Defined by JMP as those that, by nature of their construction or through active intervention are not protected from outside contamination, especially fecal matter. Examples include unprotected springs; unprotected dug wells and surface water.

3. Government of Uganda



distance to water sources, and the “time burden”, the key aspects which have dominated literature on water collection. We then consider the other conditions that affect water fetching, such as the number of trips made to water sources as another measure of the time burden; congestion and queuing; transportation modalities and their associated effect on physical and emotional health/well-being; and risks of assault. Finally, we conclude in Section 5.

2. Study Area

Makondo Parish is found in Ndagwe Sub-County, Lwengo District, in south-central Uganda, about 194 km from Kampala, Uganda’s capital. The Parish covers an area of about 20 km² and is made up of 15 villages namely: Makondo, Michunda, Misaana, Kyamukama, Luyiyi Kaate, Luyiyi Potazi, Kiyumbakimu, Kiganja, Kitereede, Kayunga, Kibuye, Misenyi, Kijjajasi, Kanyogoga and Wajinja. The Parish has a population of about 8,193 people, of which 51.4 percent are females (UBOS 2010). The major ethnic group in the area is the Baganda, a Bantu speaking group that derives most of its livelihood from crop and livestock farming and small trading. Makondo Parish has two rainy seasons (March–May and September–November) and two dry spells (January–February and June–August) with an annual average rainfall of 950 mm. A part of the Parish extends to the “cattle corridor” that experiences long droughts and erratic rainfall (NEMA 2008).

The Parish is a rural setting where water is scarce and there are numerous social and environmental constraints on water collection. Most of the water sources are located in valleys, with the water fetchers having to transport water on rather hilly terrain. The parish has no piped water and the most common sources of domestic water are open wells/ponds, boreholes with hand pumps, shallow wells with hand pumps, a protected spring, and least commonly, rain-water harvesting. Currently, most of the “improved”⁴ water sources, especially boreholes and shallow wells, are not functioning. Thus, Makondo Parish was an ideal case study (e.g., Creswell 2003; Yin 1994) for examining the social and environmental dynamics in domestic water collection in rural Uganda.

3. Methodology

We employed a mixed-method approach, in which both quantitative and qualitative data were collected to produce more holistic knowledge for informing theory and practice (Creswell 2003; Burke and Onwuegbuzie 2004). We reviewed literature on water collection in rural developing communities in Africa, visited the case study communities in Makondo Parish and later conducted a repre-

4. Defined by JMP as those that, by nature of their construction or through active intervention are protected from outside contamination especially from faecal matter. Examples include piped water into dwellings; boreholes; protected dug wells or shallow wells; protected springs and rainwater

5. That is the analysis of text, audio materials, field notes or open-ended interview responses so as to systematically extract meaning to build or support an argument. In this study, we identified themes, patterns and situations (relating to water collection) that emerged from in-depth interviews and FGDs.

6. A term used by psychologists to describe what happens as marriage (or in this case any marital or sexual relationship) between a man and woman grows with time, which may be weeks, months or years.

sentative cross-sectional survey (Fink 1995:49) covering 602 households (about 35 percent of all the households in the parish) spread over the 15 villages. A household head, or any other adult male or female found in the randomly selected households at the time of the interview, would be interviewed. Female- and child-headed households were purposively included in the sample because of their special status/unique vulnerability to water scarcity. We assumed a collective model of a household (Ray 2007:426) and categorised household members into six gender groups: men; women (aged above 24); male youths; female youths (aged between 18 and 24); male children; and female children (as minors aged between 5 and 17). About 63 percent of the survey respondents were women, and our major unit of analysis was households, although many questions targeted individual characteristics, conditions and experiences.

Following the survey, we conducted in-depth interviews (IDIs) with key water actors at village, parish and sub-county levels; focus group discussions (FGDs) segmented by gender — 5 with women and 5 with men, and also incorporated the activity clock and access and control profile as gender analysis tools (Moser 1993); and participant observation (PO) applying the ‘observer as participant’ role taking into consideration the gender roles in water collection (Bryman 2008:410; Murchison 2010:87–88).

The qualitative investigations covered four villages selected based on their location in the Parish, type and distribution of “improved” and “unimproved” water sources, socio-economic and demographic characteristics such as population size, and level of commercial/business activity. The study took a period of 10 months, from April 2011 to January 2012. Analysis was done using univariate and bivariate statistical methods, including the chi-square test with 0.05 as the p value (Bryman 2008; Schutt 2004:368–408). The qualitative data were analysed using content analysis⁵ (Silverman 2007:159).

4. Results and Discussions

4.1 Water Fetching: Whose Responsibility?

The responsibility of fetching water in most rural households is gendered (e.g., Coles and Wallace 2005; Roy and Crow 2004). Over half of our survey respondents (54.7%) said that women collected water in their households, followed by female children (19.4%); adult males (9.4%); female youths (5.7%); male children (5.6%); male youths (3.5%) and household helps (1.7%). However, information from FGDs, IDIs and POs showed that female and male children aged 5 to 15 were more involved in water collection compared to say adult males and youths in general. These children mostly visited the water sources early in the morning (6–7:30 a.m.) and in the evenings (5–7 p.m.). This was because cultural norms in Makondo Parish allocate the task of fetching water for most times of the day to children. Additionally, as many of the children are of school-going age, their parents encourage them to fetch water early in the morning (before they go to school) and in the evening (when they have returned from school).

Although women also fetched water, their involvement seemed to depend on two major factors: availability of children (biological or not) in their households; and (for married women) the “stage”⁶ of their marital relationship irrespective of whether they were permanently married or cohabiting. Women in households with children tended to be less involved in water collection, as they often left the task to children except in circumstances when children would be very sick or at school. The women without children⁷ collected water two to three times a day, carrying up to 20 litres (L) of water per trip (see section 4.5 ahead). With regard to the stage of their relationships, women who had just got married or were in early days of cohabiting with their male partners were less involved in fetching water. Some male and female FGD participants revealed that these women were excused from the activity by their husbands/partners, the latter preferring to buy water from vendors (especially for couples that stayed in or near trading centres). It was also reported that the husbands/partners thought that stopping the women from collecting water would minimise the chances of them being coveted by other men as they walked to the water points.

Adult male involvement in fetching water for household consumption in the parish was uncommon. Traditional norms and stereotypes deemed it shameful, demeaning, ‘unmanly’ and unusual for a man to collect water, especially on a daily basis. Some survey respondents and women in FGDs supposed that men who collected water were ridiculed by other men, who urged them to stop or else they risked fetching water in their homes for the rest of their lives. Men also ridiculed other male water fetchers, saying they may have been ‘charmed’ by their partners to be submissive. A female survey respondent from Kanyogoga village alleged: “Some men tell their [male] friends who collect water that you...you must be bewitched, how do you collect water every day as if you do not have a wife?” Also, some female FGD participants alleged that a man who fetched water daily was deemed to be ‘emotionally unstable’, ‘having something wrong in his head’ or ‘nearly mad’:

“If a man fetches water every day and yet he has a wife and children, we might suspect that he has something missing in his head; he could be mentally deranged.” (Female FGD, Makondo Village)

The few men who collected water⁸ did not have children or partners; had sick wives or children; were domestic or construction workers; water vendors; only did it during long droughts when water access became more difficult; or simply did it to earn quick income. Indeed, most of the households in trading centres in villages such as Luyiyyi Kaate, Makondo and Kibuye got water from male water vendors, who charged their clients UGX⁹ 300–500 or (US\$ 0.12–0.20)¹⁰ for a 20L jerry can of water. Men’s willingness to collect water for income was echoed in this FGD:

“Our husbands do not fetch water for use in our households be-

cause that is not their responsibility. They can only fetch water as an odd job or if they are going to be paid for it”.

(Female FGD, Misaana Village)

The findings of this study on the responsibility for water collection falling on children and women are consistent with research done in Asia (Crow and Sultana 2002; Bennett et al. 2008) and Africa (e.g., Arouna and Dabbert 2010; Banda et al. 2007; Hazell 2010; Nyong and Kanaroglou 1999; Ray 2007; WHO and UNICEF 2010). Men’s desire to collect water for income and their water fetching involvement in periods of severe water scarcity has also been reported in Southern Africa (Mazvimavi and Mmopelwa 2006:718). Perhaps a point to note in our study is that in some instances, social factors such as having children in a household and being in early stages of marriage or relationships reduced the burden of water collection on women. In the next section, we discuss our findings on how distance to water sources increases the burden of carrying water.

4.2. Distance to Water Sources

The distance moved by women, men and children from their households to water sources is a key measure of the water collection burden in developing communities (e.g., Bimla et al. 2003; WHO and UNICEF 2000). Forty percent of survey participants in Makondo Parish complained that their water points were “too far from their households”. This was one of the major problems they faced in collecting water especially from the fewer “improved” sources.

We then asked participants to estimate the distance from their households to their main water sources in the more familiar unit (mile), which we converted to kilometres (km). 22 percent of the survey respondents said their households were located at least 2 kilometres or more from their water sources. When asked to state their main sources of drinking water, 41.5 percent of the respondents said they fetched it from “unimproved” sources such as open wells and ponds. These sources were said to be closer to households; were more reliable; and did not require the payment of maintenance fees common with “improved” sources whenever they broke down.

However, while households in three of the four villages were within the 1 km limit set by WHO and UNICEF (2000) and the 1.5 km limit for Uganda (GOU 2007)¹¹, the communities complained of “long distances” as a major impediment to their access to water. Thus, while average distances to water are within “acceptable” ranges, the nature of the terrain (hilly, rugged and uneven) makes it particularly taxing for water fetchers. For exam-

7. As indicated in Section 3, youths were children aged between 18–24. Some of these women had youths in their households but they were rarely at home, or were married and could no longer fetch water.

8. The 9.4 percent indicated above

9. Uganda Shillings

10. Exchange rate was 1 US \$ = UGX 2,425 during the data collection period

11. Access to water in Uganda is defined as the ability of households to use 20 litres of water per person per day from an improved source that is not more than 1.5 km away from their dwelling.

12. Also, most of the and “improved” water sources were located in valleys, some of them close to “unimproved” sources, as was observed around the protected spring in Makondo village and the shallow well in Kibuye village.

ple, shallow wells, the most common improved water technologies in Makondo Parish, were mainly located in valleys, while most households were concentrated on hillsides/hilltops and more raised areas not close to the water points¹².

Our findings on distances covered by children and women to and from water sources concur with earlier observations in parts of rural Uganda and Western, Central and Southern Africa (e.g., Arouna and Dabbert 2010; Arku 2010; Geere et al. 2010; Hazell 2010; Thompson et al. 2001). Distance or proximity to water sources in Makondo Parish influenced the choice of the water sources; due to their greater number and “reliability”, most households relied on “unimproved” sources. Thus, we also examined social and gender-related factors other than distance so as to depict the true social-contextual realities in collecting water. Time spent in moving to and from water sources was one of these.

4.3. The ‘Time Burden’ of Water Collection

The time spent collecting water (sometimes called the ‘time burden’), refers to time spent moving to a water source, drawing water and returning home (Coles and Wallace 2005; Roy and Crow 2004; Whittington et al. 1989; WHO and UNICEF 2010). In our study, the time spent moving to a water source, drawing water and returning home varied with gender and age. Our survey revealed that whereas the (very few) male water fetchers

Gender Group	Time Taken (%)					
	<10 min-utes	10-30 mins	30 mins -1 hr	1-2hrs	2-3 hrs	> 3 hrs
Men*	7.8	45.3	29.6	13.4	3.9	-
Women**	4.3	33.5	42.4	17.4	2.4	-
Female Children***	2.1	14.8	38.1	31.5	12.5	1.0
Male Children****	1.8	14.3	39.0	32.1	12.2	0.6
Female Youths*****	3.9	16.1	45.8	26.5	7.1	0.6
Male Youths*****	3.6	27.7	35.0	29.2	4.4	-

Table 1. Approximate Time Taken to Collect Water from Nearest Water Point by Gender Group (multiple responses, n=602)
Source: Field findings, July– November 2011; *n=179; **n=373; ***n=289; ****n=336; *****n=155; *****n=137

spent only 10 to 30 minutes per single trip collecting water from their main water sources, most of the women, male and female youths and children spent between 30 minutes and one hour (Table 1).

Additionally, a greater percentage of female and male children and youths (in that order) spent more than one hour collecting water per trip, as compared to the men and women. This is dis-

cussed later in section 4.5.

As for the female youths and children, perhaps some carried water loads that were too heavy for their age¹³. For example, some 10–11 year olds carried 10L jerry cans and 13- to 15-year-olds 20L. Another factor in time spent collecting water was that many of the children

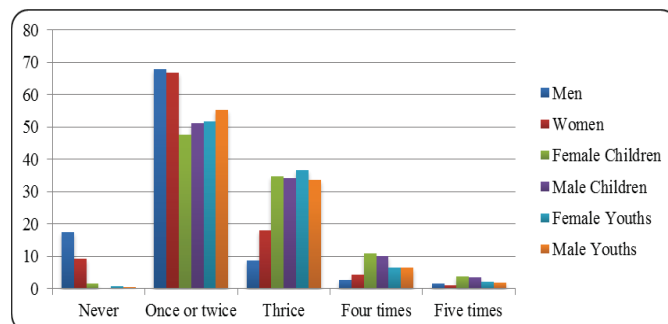


Figure 1. Daily Trips to Water Points by Gender (multiple responses, n=602)

aged between 5 and 10 played en route to the water sources, including while in queues at the “improved” water points (see section 4.4).

We also examined the number of times individuals travelled to the water sources every day as another social dimension of the time burden (Sorenson et al. 2011). The survey respondents reported that all the gender groups mostly visited the water points once or twice a day (Figure 1). Although Figure 1 shows that nearly 70 percent of the men visited water sources once or twice daily, the reality was that only a few men fell into the regular water fetchers’ category. These included water vendors and domestic or construction workers visited the water sources, as observed in section 4.1. It is therefore not surprising that men constituted the highest percentage of individuals that never travelled to water sources.

Figure 1 further shows that the highest number of trips made to water sources (four or five times) was made by female children, followed by male children. This trend is in line with what was observed in the PO sessions.

Some previous studies (e.g. Mazvimavi and Mmopelwa 2006:718; UNDP 2006:4) on time spent moving to and from water sources in rural Uganda and Africa also confirm that women and children spend more time collecting water, with women spending an average of 1–2 hours a day and children 3–6 hours. However, our findings contrast with earlier research which has indicated that rural women in Southern and Eastern Africa spend an average of more than 2 hours a day collecting water compared to children (Boone et al. 2011; Roy et al. 2005:3). In some parts of Africa and Asia, women and female children spend double or thrice the time recorded in Makondo depending on the season (15–17.5 hours, e.g., Banda et al. 2007; Crow and Sultana 2002:712; Neto and Tropp 2000:233; Nyong and Kanaroglou 1999). Studies on trips to water sources are few, but our findings are perhaps similar to what has been reported in East-

13. During observations at water points and in FGDs, as expounded in sub-section 4.5.2 ahead

14. Three, four or five times per day, Figure 1.

ern Uganda, where over 95 percent of the trips were made by children and women combined (Sugita 2006:531); and in India, where women made 2-3 trips per day. A point to note in our study is that children of both genders made more trips to the water points¹⁴ than women.

4.4. Congestion and Queues

The physical presence of individuals at water sources through ‘conventions of queuing’ (Franks and Cleaver 2007:301) can constrain water collection. Just over a quarter (26.7%) of the survey respondents in Makondo Parish stated that queues were a major problem in obtaining water from “improved” water sources. Additionally, filling jerry cans is time-consuming and rather strenuous. Long queues were frequent because many of the pumps in the Parish had broken down and those that were functioning were shared by households from two or three villages, for example the shallow well in Kayunga village and the borehole in Kanyogoga.

Observations at these water points at different times of the day showed that queues were longest in the early mornings between 6 and 8 a.m. (before children went to school)¹⁵ and late evenings between 5 and 7 p.m., after the children had returned from school. Most of our PO sessions were conducted during the first dry season (January-February, see section 2.0). During the long dry season (June-August), queuing was reported to be incredibly worse, with children and women spending between 2 and 6 hours. This was due to overuse of the water sources and ‘geogenic’ or natural factors, such as the reduced return flow of the water, which increased the time for filling water containers.

This also constituted a “prime time” for physical and emotional exchanges and abuses among water collectors. Fights between children and youths over who would first collect water, or even between children and adults due to impatience and forceful jumping of the queues (especially by boys) were observed at the borehole during some of the PO sessions. We discuss this in more detail in section 4.6.

Our findings on congestion and queues at “improved” water sources in late evenings and during long dry seasons have also been reported in some parts of Uganda (e.g., Ademun 2009; Rudaheranwa et al. 2003). The occurrence of queues in Makondo Parish due to few “improved” water sources serving a bigger number of households is also consistent with what has been established in rural areas in Kazakhstan and Ghana (e.g., O’Hara et al. 2008; Arku 2010:240), where women and children lined up for water at “improved” water points for up to 30 minutes.

15. during the school-term periods

16. Also a popular rural transport technology in rural Uganda

17. Two of the girls were aged 14 from the villages of Kibuye and Misaana; one girl was 17, from Kyakanyomozzi, which borders Kibuye; the woman was 26, from Misaana village.

18. Equivalent to 20 kilograms or 44 lbs considering that 1 litre=1kg or 2.2lbs (Taylor 1995)

19. A member of the Water User Committee responsible for the day-to-day supervision of the water source (GOU 2007)

4.5 Transportation of Water and Associated Health Risks

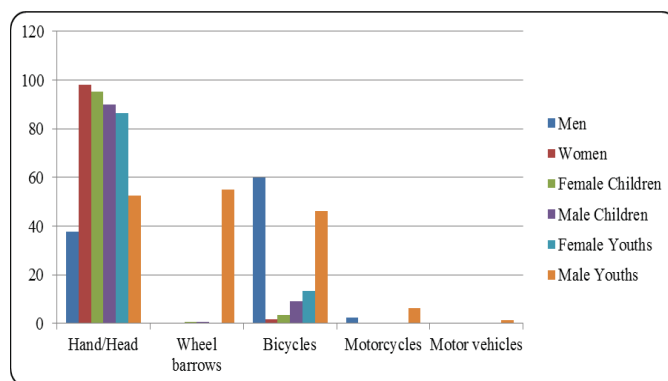


Figure 2. Modes of Transporting Water by Gender (multiple responses, n=602)

Transporting water from a water source to points of use, in this case households, requires physical effort, and has gendered health effects depending on the energy or ‘calorific expenditure’ per method or technology used, and for how long one is involved in its transportation (e.g., Franks and Cleaver 2007; Sorenson et al. 2011:1523, 1525). Hand lifting (or head loading) was the most common method of transporting water in Makondo Parish (Figure 2). Over 90 percent of the women and female children carried water by hand lifting or head loading, compared to 37.6 percent for men. Indeed, observations at the water points showed that men and male youths mostly used bicycles¹⁶ to fetch water, and sometimes motorcycles and wheel barrows. Only a few girls and women¹⁷ were seen collecting water using bicycles. This was because traditionally, bicycles are regarded as important household assets that are owned and predominantly used by men and male children and youths only.

Over 70 percent of the survey responses highlighted the tiresome nature of carrying water as a constraint. Many respondents added that carrying water, especially by hand, required “a lot of physical energy” and created physical demands on the body (Geere et al. 2010:2).

From their own experiences, men, male youths and children found it relatively less physically arduous when they used bicycles to fetch water. For example, a 15-year-old boy from Misaana village said: “When I have my bicycle, fetching water is not a big problem as I do not use a lot of energy. But when I carry water on my head, I don’t feel comfortable. I get headache, chest and neck pains.”

In South Africa, men transport water using donkey carts (Mazvimavi and Mmopelwa 2006:718) and other technologies. The women, female and male children and female youths who collected water by hand or head loading complained about several forms of discomfort due to the water containers they carried. These are discussed in more detail in sub-section 4.5.2 below.



4.5.1 Health-related Effects of Carrying Water

Health is sometimes understood in terms of the social benefits of 'safe' water and reduction in water-related diseases (e.g., Crow and Sultana 2002:78; Esrey et al. 1988; WHO and UNICEF 2012). However, the health effects and risks of 'carrying water containers' (Geere et al. 2010:1–2) are also important, particularly for chil-

Gender Group	Ailment (%)							
	Chest pain	Headache	Nasal bleeding	Fatigue	Back pain	Spinal problems	Others	None
Men*	35.7	5.7	-	22.9	1.4	0.7	0.7	32.9
Women**	64.4	6.7	0.8	13.6	1.9	0.3	1.1	11.1
Female Children***	34.5	23.1	2.7	23.1	-	-	-	16.5
Male Children****	33.3	19.7	4.0	23.7	-	-	0.3	19.0
Female Youths**	42.6	19.1	3.5	19.1	-	-	-	15.7
Male Youths***	36.2	16.5	0.8	18.1	0.8	0.8	-	26.8

Table 2. Perceived Ailments/Health Problems Resulting from Transporting Water, by Gender (multiple responses, n=602)
Source: *Field findings, July – November 2011*; *n=140; **n=360; ***n=255; ****n=300; *****n=115; *****n=127; *****n=18. Others includes least reported ailments such as "pain in arms" and "pain in legs"

dren and women. We examined the size and capacity of water containers or jerry cans that individuals carried in Makondo Parish, and the resultant health-related problems. Most of the women, youths and children aged 15 and above carried 20L¹⁸ jerry cans; female and male children aged 10–15 carried 10L; children aged 5–10 carried 5L jerry cans; while 3L jerry cans were carried by children aged below 5. However, observations at the water points revealed that some children aged 10–15 years carried 20L jerry cans, a weight that could be agonising for their age, as revealed by many women during the observations and in FGDs.

Most of the survey respondents from all gender groups mentioned chest pain as a result of fetching water, although the pain was reported more frequently by women and female youths (Table 2). Chest pain was followed by fatigue and headache among children and youths, ailments which could be due to the longer hours these individuals took fetching water daily, as well as the many trips they made (see section 4.3). Nasal bleeding also occurred after water fetching.

Deaths and accidental injuries due to drawing water, especially from "unimproved" water sources, were also reported. There were three cases of children drowning at open wells or ponds in the villages of Makondo, Wajjinja and Kiganjo; one of these (Kiganjo) happened when data for this study was being collected. The victim in Wajjinja village was trying to retrieve a 5L jerry can that had slipped out of her hands into the middle of the open pond while she was filling it up. Sadly, she slid and fell in the middle of the pond and

drowned. Cases of accidental injuries sustained while fetching water were also reported, such as children skidding on slippery roads during the rainy season, tripping over stones and other objects, and falling as they carried water to their households.

Our findings are in agreement with what Buor (2004) and Geere et al. (2010) observed in Ghana and South Africa respectively, where women and children also experienced fatigue from carrying heavy water containers. Geere et al. also report that incline, which relates to environmental conditions such as the hilly roads mentioned by women in Makondo Parish increases the 'physical work' required to ferry water (Geere et al. 2010:8). In the next section, we discuss yet another aspect with social and health implications, particularly physical, emotional and psychological, which water fetchers in Makondo Parish faced.

4.6 Assault

Assaults are less-understood social problems in water collection. These attacks can be verbal or physical, and the latter can come from both humans and wild animals (Sorenson et al. 2011:1525).

4.6.1 Verbal Attacks

Verbal attacks on individuals reportedly occurred at water points in Makondo Parish. Men, women and children interacted or socialised while at the "improved" and "unimproved" water points, the latter doing so more amongst themselves through chatting and playing, as was discussed in section 4.4. While these interactions were generally affable, some survey respondents and FGD participants affirmed that children sometimes used or exchanged socially and culturally unappealing language or vulgar words that made adults in their presence uncomfortable. Many of the child PO participants, especially girls, admitted that boys insulted them a lot while queuing or drawing water from the water points. There were also a few incidences of verbal attacks between adults and children, including one on a Caretaker¹⁹ of the shallow well in Misaana Village, who was verbally attacked by a young girl of about 10 when he tried to caution her about misusing the pump.

4.6.2 Physical Attacks by Humans and Animals

Attacks from Humans

Children interacted and played together while at the water points. But these interactions, especially at "improved" water points sometimes degenerated into verbal exchanges, quarrels or physically injurious fights. In one of the PO sessions, two children — a boy and girl — tussled with each other because the former wanted to overtake the latter in the queue. Some FGD participants also revealed that their children sometimes returned from the protected spring and pumps with minor cuts or swellings on their hands or various parts of their faces and heads, many of which were due to fighting. Stories of fights at the "improved" water sources were echoed in some FGDs, for example:

"Our children fight a lot at the protected spring and many times they do not tell us. Sometimes they fight with each other and get

seriously hurt ... A child may sustain a swollen ear or cheek and keep quiet. It is only when he/she gets worse after a day or two that he/she informs us of the injury and that he/she is sick. When you ask him/her what happened, he/she says, so and so beat me when we were collecting water at the protected spring ..."

(Men's FGD, Makondo Village)

There were also reports of rape and attempted rapes against children and women. Previous studies on verbal, physical and animal attacks while moving to water sources or collecting water are hard to come by, but our findings on verbal abuse of female children at "improved" water points are similar to earlier observations in Asia, where women were abused while fetching water from private wells (Shah 2002). Also, our findings on child rape and threats of women being raped at "unimproved" water sources are consistent with those of Kircher (2007), who also found out that women in particular were raped while fetching water in the fragile region of Eastern Congo.

Animal Attacks

There were also risks of animal attacks related to collecting water, especially at "unimproved" water sources. For example, survey respondents and PO participants expressed fears over frequent sightings of 'big' snakes at one of the open wells in Makondo village, especially in the late afternoons and early evenings during the dry seasons, and after 7 p.m. during the rainy seasons. Some women and children said that they heard "sounds of foxes" coming from the same well at night. The fear of being attacked by these animals forced most women and children to collect water from this well only between 8 a.m. and 6 p.m. In Kibuye village, organisms, such as blood-sucking leeches, in some "unimproved" water sources also caused concern to children as they were collecting water. A study in rural north-western Botswana revealed that children fetching water from a river were exposed to crocodiles (Kgomotso and Swatuk 2006:664).

5. Conclusion

We have explored water collection, beginning with the more predictable social determinants such as overall responsibility for fetching water, linear distance covered and time spent. Our investigations show that whereas time and distance are still crucial in understanding what children and women go through while collecting water, other social environmental and health-related factors need to be examined in detail so as to comprehensively illuminate how water collection affects this demographic.

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