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# Assessment of Water Provision and Associated Risks Among Children in Abeokuta Peri-Urban, Ogun State, Southwestern Nigeria: The Gender Implications

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## **Abstract**

An assessment of water supply challenges and risks facing children in selected peri-urban areas of Abeokuta (Akole-Oke Ata, Obatonko, Adigbe) in Ogun, southwestern Nigeria, was carried out during the dry season, in the months of November 2013 to February 2014. Recognizing that the yield of drinking water sources and water supply from the government were drastically reduced during the dry season, in this study, project leaders aimed to determine children's involvement in household water provision during the dry season in the peri-urban of Abeokuta Ogun State Southwestern Nigeria, and to further determine the gender distribution, risks and risk indicators, and occurrence of problems among the children during water provision. In the course of the study, a total of 100 water sources (piped water taps, boreholes, dug wells, burst pipes, streams) were visited, and focus group discussion/informal interview methodologies were adopted to gather data from the people at water points. Approximately 827 of the people met at the water points were children, with 800 of those children being girls between the ages of 5-15. The results from these interactions indicated that the girls from each household were responsible for scouting water sources, as well as transportation and storage of the water for household consumption. Out of 800 girls interviewed, 722 reported being late to school, 712 recorded poor school attendance, 456 reported being sexually harassed and/or assaulted, 166 had experienced injury experienced neck and back pain from carrying an excessive load of water, 99 were physically punished by parents or guardians at home when containers got lost, misplaced, or exchanged at the water points, and 184 were punished by the parents or guardians who believed that the girls wasted the water. Some of the respondents (12) preferred going out to provide the water for the family to avoid other domestic work. The majority said they wanted the government and/or parents/guardians to be responsible for adequate water provision for household consumption.

## **Keywords**

girls, gender, water supply, risks, hazard, Peri Urban, Nigeria, Ogun State

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## Abstract

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containers got lost, misplaced, or exchanged at the water points, and 184 were punished by the parents or guardians who believed that the girls wasted the water. Some of the respondents (12) preferred going out to provide the water for the family to avoid other domestic work. The majority said they wanted the government and/or parents/guardians to be responsible for adequate water provision for household consumption.

**Keywords:** Girls, Gender, Water Supply, Risks, Hazard, Peri Urban, Ogun State, Nigeria, survey methodology, water provision assessment  
Introduction

## 1.1. Background

Access to an adequate water supply is not just a fundamental need and human right; it also has considerable health and economic benefits to households and individuals (ChildInfo/UNICEF, 2013). Women and children (mostly girls) spend millions of hours fetching water each year. The task diverts their time from other important activities (for example, attending school, caring for children, participating in the economy, relaxing, etc) (ChildInfo/UNICEF, 2013). According to Shannyn (2014), UN Water (2014) and Robson, et al. (2013), additional challenges and risks associated with time spent fetching water include assault, rape, kidnapping, death, injuries from slipping and falling, attacks by animals, etc. Safe water is a critical environmental and public health issue, as well as a means to lift people out of poverty and ensure human security. The number of people without safe water is increasing (Natural Resources Defense Council, 2014).

As previously mentioned, this study is focused on peri-urban Abeokuta - areas directly adjoining urban areas, between the suburbs and the countryside. They exhibit traits of both urban and rural areas, but are actually undergoing a transition between the two (Kakakhei, 2013). In a typical rural, urban or peri-urban setting in Nigeria, each household consists on average of four members (a father, a mother, a child and a ward ), but in reality, many households have more than six members (Togunde and Richardson, 2006 and Adegbite, et. al., 2013). Household water needs are prioritized for drinking, cooking, bathing, and washing. Water sources include public tap water, boreholes, hand-dug wells, and rivers. The water is collected and then stored in containers at home for different uses.

Some households have overhead storage tanks for use during the rainy seasons, or to store water bought from water vendors. In households without tanks, children are tasked with the responsibility of supplying water for household consumption, and are thereby exposed to various risks (mainly, violence and injury) that pose varying levels of threat to the life, health, or development of children. For instance, children sometimes walk long distances, averaging 5 km in search of water (Woodley, 2011). In some cases, according to organizations such as Amref Health Africa (2014), children spend on average two hours collecting water every day. Thus, they may not have the opportunity to attend school on time or may have poor attendance. Another problem in the study area is scarcity of water during the dry seasons, which affects production and water supply from the state water corporation because of water volume reduction of the Ogun River, the source of raw water for the corporation's water supply scheme. In the city, the main source of the water is the government public water supply. During the dry seasons, the volume of river water available for drinking water production is reduced drastically, resulting in intermittent supply. In the peri-urban or the suburban area of the Abeokuta City, the supply of public water is pumped twice a week. Prior to water being

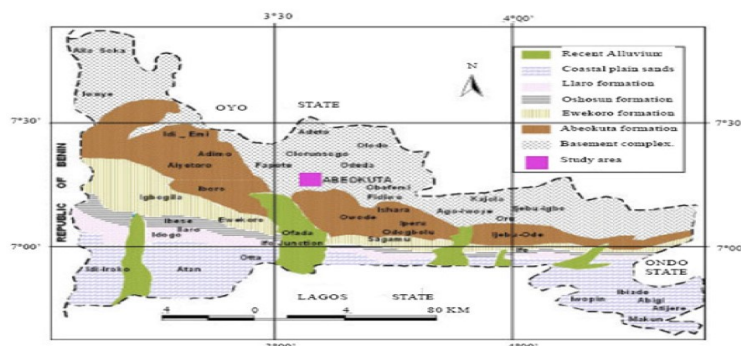
pumped, containers are lined up around the stand posts. In the course of struggling for the much awaited water flows, it becomes a case of survival of the fittest, with the strongest gaining access to water earlier than the weak. As such, women and girls experience higher risk of injury, as highlighted above.

## **1.2. The Study Area**

The peri-urban study area consists of three locations around the Abeokuta Capital of Ogun State. The locations are Adigbe (Obafemi Owode LGAs), Akole-Oke Ata (Abeokuta North) and Obantoko (Odeda LGA) of the Ogun State Nigeria. The Abeokuta North Local Government Area has a population of about 198,793 people (National Population Commission, 2006 National Census). It occupies an area of 723 km<sup>2</sup> (Ogun State Bureau of Land and survey) with an average of 295 persons per km<sup>2</sup>. The Obafemi Owode Local Government Area has a population of about 235,071 people (National Population Commission, 2006 National Census). It occupies an area of 1430 square km<sup>2</sup> (Ogun State Bureau of Land and Survey) with an average of 170 people per km<sup>2</sup>. The Odeda Local Government Area has a population of about 109,522 people (National Population Commission, 2006 National Census). It occupies an area of 1547 square km<sup>2</sup> (Ogun State Bureau of Land and Survey) with an average of 75 persons per km<sup>2</sup> (OGMOH, 2010). The population may even be larger than the 2006 census numbers suggest due to an influx of people into the city from neighbouring states of Lagos and Ogun State. Industrialization and urbanization of the state capital has resulted in the development of the surrounding peri-urban area, massive ongoing road construction, and expansion in the wake of housing demolition, causing residents of the city to move to peri-urban areas of the city of Abeokuta. Additionally, the hydrogeological setting of the study area limits its groundwater potential. The study area lies between latitudes 7°10 N and 7°15 N and longitudes 3° 17 E and 3° 26 E (Ufoegbune et al., 2009).

### 1.3. Conceptual Framework for the study

The framework for the study accounts for all possible stages of a typical household's water provision: from the water source and collection, transportation, and storage of the drinking water to the associated risks children face which may impact their physical, emotional, educational, and spiritual status.



(Source: Google Image, 2015)

**Table 1: Different Levels of Activities and Associated Risks to Which the Children Are Exposed**

Level	Risk and Risk Indicators
i : ('Hydro-spy'): scouting for water points — either piped water, dug wells, streams, or burst pipes, especially when there is the scarcity of water during dry season	Bullying, fighting, pushing, being struck by moving vehicles when crossing motorways, sexual assault, snake bites, bruises from slipping or falling, fatigue from walking long distances, danger from walking on the unfamiliar paths/roads, kidnapping
ii: Point of Water Collection	Physical fighting over who will collect water first, misplacement of storage materials, being pushed, sexual assault, bullying, injury from carrying heavy loads of water, parasitic infections on the toes from dipping them in the pools of water around the collection points
iii: Transportation of the water from the point of collection to the household	Injury from long walks with a heavy load on the head, including neck and back pains, slipping and falling, being struck by moving vehicles, other accidents
iv: Household level	The children can be punished if they have lost or broken the water collection/storage materials, return late, or bring home someone else's fetching materials. They are also physically punished if they waste the water, which can include being yelled at, hit or slapped, or ask to kneel down etc.

In most cases during the week, children go to fetch water in the morning, as early as 4 a.m., or in the evening after they return from school, often using unsafe paths. It is their responsibility to provide water for their families during the weekends as well. The children face hazards and challenges while scouting for water sources/ fetching points, carrying the water home, and upon returning home (See table 1 above). Fetching water early in the morning may cause children to arrive late to school, for which teachers may inflict punishment in the form of beating with canes. This can result in bruises, pain or discomfort, and lack of concentration at school activities due to injury, fatigue, or both.

Lecturers and students at the Department of Water Resources Management and Sanitation at Ogun State College of Health Technology Ilese-Ijebu, carry out fieldwork, excursions, and assessments of water



sources in the area as part of the departmental curricula, and made these observations. They found that the water supply distribution network does not reach people who rely on private boreholes and hand-dug wells. These are often far from their homes, requiring children to walk long distances, and in some cases cross highways, to get to the water source. Due to restrictions by private owners and high demand on these water sources, children often are forced to scout for other sources. In the process, they become vulnerable and face more risks associated with “hydro-spying,” or scouting for water sources.

This study was carried out to:

- (1) Assess children’s involvement in household water provision during the dry season in the peri-urban of Abeokuta Ogun State in Southwestern Nigeria.
- (2) Determine the gender distribution, risks and risk indicators, and occurrence of problems among children during water provision.

### **Data Collection and Methodology**

The survey was carried out during the dry seasons from November 2013 to February 2014. The focus was on determining the responsibilities and challenges facing children in the course of obtaining water for household consumption. The peri-urban areas adjacent to Abeokuta, the capital of Ogun State, namely Adigbe, Akole-Oke Ata, and Obatonko, were considered and 100 water points/sources were identified by the researchers through surveillance, inquiry, scouting methodology, and interviewing children at the water sources while they were looking for water or carrying water home. After the introduction, the following questions were asked: (1) Where do you reside? (2) How many individuals reside in your household? (3) Can you show us your container? (4) How many times do you need to visit the water point in a day? (5) How long will this water last? (6) Have you or a friend been involved in an accident during water provision? If yes, what kind of accident? (7) Does water

provision affect your school attendance? (8) What do you hate/dislike about the water fetching? The interaction is informal and completed using the local language. Most of the responses in Table 4 are responses to question number eight.

Project leaders employed observational methodology as well; the researchers counted the numbers of children and identified the boys and girls, while taking note of environmental conditions around the water points/sources. A camera and tape recorders were used to take pictures and record the conversations between the respondents (children) and researchers. The visits to the water points/sources, including piped water taps, boreholes, dug wells, burst pipes and streams, were done early in the morning and in the evening, Monday through Sunday.

The risk indicators and hazards associated with water provision among children that are considered in the study are defined as follows: (a) Heavy Load: Carrying water containers can result in headache and body and neck pain, and lifting the heavy water containers incorrectly can be hazardous and affect the spinal structures over time (Bao, 1989) and (Joosab, Torode and Rao, 1994). (b) Lateness or poor school attendance: Scouting water early in the morning involves walking long distances and can have a negative impact on school attendance (UNICEF, 2014) and (Lawani, et.al: 2014). (c) Long Distance Trek: Children who walk long distances scouting for water sources and transporting water from water points to their household face increased risk of accidents, sexual assault and lateness to school ((Mercy-USA, 2015). (d) Fear of rejection and refusal: Rejection or refusal at water points by private owners requires children to walk further and visit unimproved water sources which can be more dangerous. (e) Sexual Assault: Girls walking alone or in small groups scouting for water or carrying water are vulnerable to sexual assault by men or boys (Jenkins and Goetz, 2010), (Breiding et al., 2011), (UNICEF, 2014) and UNESCO, 2015). (f) Accidents: Children may slip, be struck by moving vehicles when

crossing highways, or be pushed into wells by other children desperate to provide water for their households (Ebrahim, 2009) and (WHO, 2015). (g) Punishment: Children may be beaten at home by their parents if they return home without finding water or lose their water containers. They may also engage in physical fighting over ownership of containers. A simple statistical tool of chart and percentile was used to display and analyze the data gathered during the study.

## Results and Discussion

### 3.1. Results on the Types and Conditions of Water Points/Sources

The survey indicated that out of 100 water points/sources visited, 68 were unimproved according to World Health Organisation and UNICEF standards, in the sense that surrounding physical, environmental and sanitary conditions pose a high risk of water source contamination and expose the people visiting them to health risks.

**Table 2: Water points/sources and unimproved points**

Town	No. of water points/sources visited	No. of unimproved points/sources
Adigbe	33	22
Akole-Oke Ata	34	23
Obatonko	33	23
<b>Total</b>	<b>100</b>	<b>68</b>

Examples of unimproved water sources include hand-dug wells that are uncovered and have no masonry support, allowing people collecting water to fall inside, as well as the pools of water around wells or boreholes that often foster fungal diseases when children dip their feet in the dirty water.



Figure 1: A private water point (borehole) at residence in Adigbe (seven girls and three boys) (Source: Authors, 2013)



Figure 2: The children helping each other carry jerry cans of 25 liters capacity (Source: Authors, 2013)



Figure 3: One of the children fetching water on Sunday morning at Akole-Oke Ata, the jerry cans displayed (Source: Authors, 2013)





Figure 4: An unimproved water source, a private water point at Obantoko where people are prevented from collecting water (Source: Authors, 2013)



Figure 6: A girl without footwear collecting water from a soak away pit under construction, filled up with runoff. (Source: Authors, 2014) Located at Akole Oke Ata



Figure 5: Unimproved source, leaking/burst pipe and running water in gutter/channel (Source: Authors, 2013) Locations at Adigbe, Akole-Oke Ata

**Table 3: Number and gender of respondents**

Zone/Town	Children	Girls	Boys
A/Adigbe	288	273	15
B/Akole-Oke Ata	231	229	2
C/Obatonko	308	298	10
Total	827	800	27

Of the 827 children sampled in total, 800 were girls ranging in age from 5 to 15 years, and 27 were boys in the same age range. In some cases, adults with privately owned cars or public/commercial taxis with water containers (known as jerry cans) come to the water points/sources to collect water for their households.

### 3.2. Number of Respondents and Their Gender

From the Zone A Adigbe area, a total of 288 children participated in the study, 231 at Zone B Akole-Oke Ata area, and 308 at Zone C Obatonko. The figures indicated an average of 9 children, 7 children, and 9 children per water point/source at Zone A, Zone B and Zone C respectively (see Table 3).

### 3.3. Results on the risk and risk indicators among the respondents

Table 4 shows the responses of children on the risks they faced at all points of water provision for their households. The table displays responses based on the severity of particular aspects of water provision, the largest risk associated with the physical heavy load of water they carry, and the least serious as a fear of losing the water containers.



**Table 4: Challenges and risks (injury, violence) reported by girls while collecting water**

<b>Risks/Indicators</b>	<b>Responses from girls</b>	<b>Percentage out of total Respondents</b>
Heavy Load	788	95
Lateness to School	722	97
Poor School Attendance	712	86
Long Distance Trek	699	85
Fear of rejection/refusal at water points owned by private individual	500	60
Sexual Assault and /or harassment	456	55
Accident	345	41
Punishment by Parents/Guardian	184	23
Injury	166	21
Fear of returning home with empty containers	122	14
Fear of losing water containers	99	11

The children's responses (girls) indicated that they face risk of back, waist, and neck pains from carrying heavy 'jerry cans' that hold about 25 liters at capacity. Furthermore, most of the girls reported a belief that their back pains during their menstrual period worsened as a result of heavy load of water they carry<sup>1</sup>. Respondents also reported tardiness and poor attendance at school as a result of water provision. In addition to missed classes, assessments and activities, they also experience increased fatigue which negatively affects their ability to participate. This can have a serious impact on overall school performance ( Adow, et.al.; 2013) (UNICEF, 2015).

Children's responses also showed that over 90% have experienced some form of violence and injury. Approximately 85% were physically injured from fighting, slipping, carrying heavy loads of water, being beaten at home when they lose, mix up, or break the containers, or punished at school for tardiness due to responsibilities to provide water at home. Falling or stepping on dangerous objects such as nails, broken glass, sharp objects etc. were also mentioned as potential causes for physical

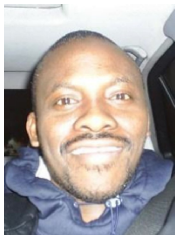
<sup>1</sup> At the time of writing this paper, no scientific study was found that researched increased physical pain during menstrual period as a result of carrying heavy load.

injury during water collection. Additionally, 45% of female children surveyed reported sexual harassment during water provision, including touching of their breasts, striking of their buttocks, or raising of their skirts by male counterparts. Another 41% of respondents witnessed friends or neighbours struck by moving vehicles (bicycles, motorcycles and cars) while out for water provision. However, twelve of the respondents still prefer to go out to scout and fetch water for the household despite risks involved. They believed this is a way to avoid other domestic work.

Finally, the children are prone to foot diseases and fungal infections of the skin including jock itch, ringworm, and yeast infections when their feet come into contact with stagnant water around the water source/points. Furthermore, it is worthwhile to note that from the study more girls are involved than boys, which confirms similar reporting such as Statistics South Africa (2013). The results indicated that the ratio of female to male was thirty-to-one (30:1) in household water provision. Therefore, the rate risks and risk indicators identified in Table 4 above are common and particular to girls during household water provision.

## Conclusion

The study concludes that girls and women are disproportionately affected by the process of water provision, especially during times of water scarcity. Hygiene and sanitation conditions at the water points need to be addressed because they pose serious potential hazards and environmental risks to the populace. The problems and risks to children associated with securing water supply can be drastically reduced if the government increases the coverage level of water provision to the populace and ensures a regular supply. Laws preventing children from searching and providing water for the households should also be enacted, and an awareness campaign to educate the communities about the dangers of child labor and abuse would show a step in the right direction toward combating this important issue.



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