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'*A Child is also a Teacher':* Exploring the Potential for Children as Change Agents in the Context of a School-based WASH Intervention in Rural Eastern Zambia

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An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
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Abstract

'*A Child is also a Teacher':* Exploring the Potential for Children as Change Agents in the Context of a School-based WASH Intervention in Rural Eastern Zambia
By Sara Bresee

**Background:** School-based water, sanitation and hygiene (WASH) interventions have been shown to ameliorate health and increase school attendance for children. Community engagement is a key aspect to the sustainability of school-based WASH interventions. Though it can be challenging to motivate communities to adopt WASH behaviors and technologies, schoolchildren have previously been shown to influence community change. This is especially pertinent in rural settings where other techniques to engage communities might not be as effective. To our knowledge, there have not been any studies exploring children as change agents in the context of a school-based WASH intervention. The following study sought to explore the potential for children to be change agents for WASH in Zambia.

**Methods:** We employed qualitative methods to explore the perspectives of teachers, pupils and their female guardians on WASH behaviors and the capacity for children to be able to influence their families on WASH. We visited 5 schools and conducted 20 focus group discussions with pupils using participatory learning activities, 5 focus group discussions with their female guardians and 5 key informant interviews with teachers over the course of six weeks between June and August 2013.

**Results:** Results from this study were organized into four major themes: WASH behaviors and motivators, parental receptiveness, child agency and teacher influence. Female guardians displayed receptivity towards receiving WASH information from their children. Teachers were shown to engage children on the promotion of WASH behaviors and technology at home. Pupils in the school-based WASH intervention area demonstrated the capability to communicate WASH knowledge and behaviors to family members. Pupils reported conducting safe WASH behaviors in the school and a desire to practice safe WASH at home.

**Conclusions:** The findings show there is a high potential for children to serve as agents of change for WASH in the context of a school-based WASH intervention. The study showed that pupils would utilize techniques like altering their environment, reminding their family regularly and communicating using their homework to influence change at the home level. Families also were shown to be receptive due to previous exposure to WASH and an existing desire to change.

# '*A Child is also a Teacher':* Exploring the Potential for Children as Change Agents in the Context of a School-based WASH Intervention in Rural Eastern Zambia

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# Chapter I

## 1. Introduction

School-based WASH programs have been shown to improve health and educational attainment of children [1]. Evidence has shown that improved WASH access at school can lead to better school attendance [2, 3]. Hygiene promotion can reduce disease [4], and hygiene education can lead to a reduction in fecal-oral disease transmission by promoting handwashing and other hygienic practices [5]. Providing greater access to water leads to lower levels of dehydration; dehydration can have a negative impact on children's acute cognitive skills [6]. Better quality latrines create a more desirable school environment and discourage open defecation [7]. A study conducted in Kenya showed that school WASH interventions can reduce diarrheal rates among students and lead to fewer absences [8]. In the same study, O' Reilly et al. (2008) noted that implementing WASH education in the school also increased safe water treatment practices amongst the family.

Community change can be challenging for WASH, especially in terms of rural sanitation [9]. Engaging children as change agents can be an effective method of behavior change communication (BCC) to disseminate messages from school to home [10]. Children have been shown to influence their peers and their families on WASH, though few studies have been conducted. Children are seen as good agents of change for several reasons: they are fast learners, curious and have regular access to information through school [11]. Children attending school in rural and remote areas can target households typically missed by traditional marketing campaigns. Modern marketing strategies are not as useful in rural areas

where radio and television signals are not strong [12]. Students can be seen by parents as trusted purveyors of information and can demonstrate key behaviors [13]. Children can advocate for healthy behaviors as active members of society and can be regular reminders for habit-forming activities [14]. Utilizing children to communicate health messages is also an inexpensive way to market a health intervention [11]. With the increase in children attending schools in Zambia (98% enrollment rate in 2005), there is a unique opportunity for health communication interventions to disseminate health information to the community [11, 15, 16].

Globally, there are an estimated 1.5 million diarrheal cases per year [17]. Water, sanitation and hygiene (WASH) related diseases are one of the leading causes of mortality especially in children under the age of five [18]. Approximately 800,000 children under five die every year from diarrheal disease [19]. Eighty-eight percent of diarrheal diseases are related to unsafe water, sanitation and hygiene (WASH) technologies and practices [19, 20]. Although children under the age of five are the most vulnerable, school-aged children still have high levels of morbidity and mortality related to diarrheal diseases [21]. For school-aged children, over one-fifth of deaths or disease can be linked to unsafe WASH [17]. Diarrheal diseases can have negative impacts on child's ability to attend and succeed at school. It can negatively impact their cognitive development and physical growth [22].

Given the high incidence of diarrhea and other WASH-related diseases amongst children there is a need to have safe environments at home and at school. Children have been shown to be able to influence families health practices through knowledge dissemination of health

practices [10, 15]. However, there is a need to further understand the nuances of how they can be agents of change for WASH. In the context of SPLASH (Schools Promoting Learning Achievement through Sanitation Hygiene), a school-based WASH intervention in Zambia, there is a significant necessity to understand how to increase child to family communication for WASH. Most SPLASH schools are in rural areas, the majority of whom live at a great distance from hospitals or other infrastructure that can communicate health-related information. The goal of this study was to understand if and how children can influence their families in adopting healthy WASH behaviors in the context of SPLASH. This study utilized qualitative methods to explore the potential for children to be change agents. The study addressed the following research questions:

**Primary:** What is the potential for children to become agents of change for WASH behavior change in rural Eastern Zambia?

**Secondary Questions:**

1) What are the WASH behaviors of schoolchildren and existing cultural norms and practices of WASH in Eastern Zambia?
2) How are schoolchildren in the SPLASH area able to communicate WASH information learned from school to home?
3) How are parents receptive to children being agents of WASH behavior change?
4) What role do teachers play in promoting WASH message dissemination and behavior change?

**Specific Aims**

1. Describe behavior, cultural norms, and attitudes towards sanitation and hygiene of primary school students within the SPLASH study area.

2. Understand how schoolchildren are able to take home WASH information to their parents and families.

3. Identify who children and parents consider to be trusted sources of information and key avenues for message dissemination in order to understand the potential role children can have in communicating WASH messages from school to home.

# Chapter II

## 2. Literature Review

### 2.1 Water, Sanitation and Hygiene

There is ample evidence to support that WASH is crucial to the health and wellbeing of individuals. In a meta-analysis by Pruss et. al., WASH related diseases were estimated to account for 4.0% of all deaths worldwide and 5.7% of the disease burden overall [19]. Safe WASH practices are dependent upon safe WASH infrastructure [23]. Poor WASH infrastructure can lead to exposure of many different diarrhea-causing pathogens through the fecal-to-oral transmission route. In the same meta-analysis Pruss et. al also found that by providing improved water, improved sanitation and improved hygiene individuals were at the lowest risk of fecal-oral pathogens at 2.5 compared to no improved WASH at a risk of 11.0 [19]. Furthermore, the burden of WASH related diseases tends to fall on the rural and most impoverished members of a population [19].

#### *2.1.1. Water*

The World Health Organization (WHO) and UNICEF's Joint Monitoring Programme (JMP) categorizes safe water or *"improved drinking-water"* into: (1) *"public taps or standpipes, tube wells or boreholes, protected dug wells, protected springs, or rainwater collection" and (2) "piped household water"[24].* "Unimproved" sources are considered "unprotected dug well, spring, cart with small tank or drum, tanker truck, surface water or bottled water[24]." Drinking water from safe or "improved" sources has been shown to prevent diarrhea. Hutly et al. found that

people who drank water only from an improved source (i.e. borehole) had a lower point prevalence of diarrheal outbreaks than those who reported not drinking from the borehole [25].

### *2.1.2. Sanitation*

Safe sanitation is defined as a facility that hygienically separates human excreta from its surroundings [24]. Examples of safe sanitation according to the JMP are "flushed toilets piped to sewer system, sceptic tank or a pit latrine, ventilated improved pit latrines, pit latrines with slabs or composting toilets"[24]. The most "unimproved" or unsafe practice according to the JMP is considered open-defecation or the disposal of human feces in open areas (i.e. fields, bushes, water, beaches, or forests)[24]. Safe sanitation has been shown to reduce fecal-oral disease transmission [26].

### *2.1.3. Handwashing*

Handwashing has been shown to have an impact on the rate of diarrheal disease. In a systematic review of the impact of handwashing with soap on diarrheal diseases, it was shown that there was a risk reduction that ranged from 42-44% [27]. In a separate systematic review assessing the evidence of hand hygiene and disease reduction, Alello and Larson found 53 studies from 1980 to 2001 linking hygiene to increased health [5]. Overall, the risk reduction was more than 20% for the intervention studies that were found [5].

## 2.2 School based WASH programs

WASH in schools is an essential aspect to improve the learning experience. WASH in schools implies providing safe drinking water, access to clean sanitation and improved hygiene but in the school setting [1, 28]. It has been shown by implementing proper WASH

interventions in schools children have reduced diarrheal rates, they have fewer absences and then fare better in school [8]. Improving WASH not only influences child outcome and development, but also impacts the entire community. It has also been noted that by implementing WASH practices in the school, it can disseminate to families and community [8].

There are specific standards and aspects of school-based WASH that the World Health Organization created in 2009 [28]. These standards specify aspects of school WASH technology that are necessary for an adequate WASH environment such as pupil-to-toilet ratio[28]. Moreover, these guidelines stipulate that actively engaging pupils in school WASH clubs to manage the WASH technology at school and promote hygiene, is key to the success of a WASH intervention [28]. Active pupil engagement in WASH tends to be promoted by a teacher at the school who is the WASH coordinator [28]. Furthermore, school WASH interventions tend to utilize a community -based approach which promotes sustainability of the school WASH programs [28, 29]. Community WASH champions, or key community influencers, are people in the community that are often taught by the organization implementing the intervention to be key WASH resources in the community[28]. According to the WHO guidelines pupils can be agents of WASH change to influence community WASH behaviors [28].

## 2.3 WASH in Zambia

Zambia has made progress in one of the areas of the Millennium Development Goal (MDG) 7 (Environmental Sustainability), from 1990 to 2010 the amount of people without access to clean water has decreased from 51% of the population to 36.9%[30]. Conversely, access to

improved sanitation has actually worsened since 1991 from 26% of the population not having access to now 67.3% of the population does not have access to improved sanitation [30]. It is estimated that approximately two million Zambians practice open-defecation [31].

Rural area statistics regarding WASH are more disturbing; twenty-seven percent of the population practices open-defecation [24]. Furthermore, approximately half of the rural population consumes drinking water in unimproved sources [24]. Zambia has a high prevalence of diarrhea in children under five [32]. In a survey of Zambian mothers, they reported 15.5% of their children under five had experienced diarrhea in the past two weeks [32]. Eastern province was shown to have the lowest percentage of safe stool disposal of the nine provinces amongst children at 47.1% [32]. In the same survey, mothers in Eastern Province, Zambia reported 74.9% of children who had diarrhea sought treatment by healthcare providers [32]. In Zambia water is scarce and often contaminated; few households have adequate access to latrines or potable water [33].

## 2.4 Communication in Zambia

Communication in Zambia is challenging due to lack of access to technology and this is especially true in rural areas [34]. Regular exposure to mass media in Zambia is low, particularly among females. According to the Demographic Health Survey, 45.1% of the rural female population has no exposure to media during the week while 26.8% of men have no media exposure during the week [32]. Most people who are considered in the lowest economic bracket also have low media exposure and those who are exposed mainly only listen to the radio [32]. In Eastern Province, the majority of women who are exposed to media once a week, they listen to the radio at least once a week (60%) and men (70%) [32].

## 2.5 Children as change agents

Children have been shown to have influence on their families' health-related behaviors, practices and knowledge [10, 13, 15]. There have been few studies looking at this phenomenon specifically in WASH. However, there are examples of other studies researching children's impact on their families' knowledge. One experimental trial in the Seychelles examined the impact of environmental education clubs on home parental knowledge. Surveys to parents pre- and post-intervention showed a significant increase in knowledge about environmental education practices when compared with the control group [35].

In previous studies looking at child effects on adult development, children are shown to be able to teach their parents new information. In a qualitative study conducted with participants from Atlanta, GA and Boston, MA, 50 adults were assessed to see if they were learning from their children. Adults reported that they could learn valuable information from children. Adults reported children having influence over their health behaviors such as smoking or drinking [36]. One-fourth of parents in the study reported receiving information from their children and they reported subsequently changing their behaviors based on their children's influence [36]

The potential role of children as agents of change for specifically health promotion has been explored in developing African nations such as Tanzania, Kenya and Nigeria [10, 13, 15, 37]. In Kenya, a behavior change education intervention utilized participatory learning techniques

to teach children about health prevention [37]. In a pre- and post-test assessment, the study showed an overall increase in children's sense of ownership and practical knowledge of health concepts [37]. These studies focused on a concept known as the child to child method (CtC) that was originally created for peer-to-peer education. CtC was shown to work as well when utilizing children as change agents by disseminating messages from children to community [11, 13-15, 37].

## 2.6 Child to Community Methodology

According to Bailey et al. (1992) CtC has a six-step methodology to teaching children in becoming change agents for health promotion: *(1) choosing the right idea and understanding it well; (2) investigating and finding out more; (3) reporting, discussing and planning; (4) taking action (individually and together); (5) discussing the results of the action; (6) doing it better and sustaining the action* [38]. Teachers play an important role in children's ability and motivation to communicate what they have learned in school. Classic didactic teaching approaches where the teacher is utilizing a top-down, one-way process are not appropriate[37]. Teachers must incorporate techniques and activities promoting participatory approaches (e.g. role playing, drawing, singing) that allow children to become owners of the health information being taught [11, 13-15]. Thus, children become empowered and motivated to communicate this information to their community [10, 13, 15, 37, 39]. In previous studies, children were shown to be more successful change agents through this approach [10, 11, 13, 14, 37].

One of the most important aspects of utilizing children as change agents is ensuring the community trusts and accepts information received from children [15]. In a qualitative study in Tanzania, children, their families and their teachers were queried to understand the

possibility of children being change agents. It was found that parents were receptive to the idea of children communicating health and sanitation messages to them [15]. From the parental perspective, factors which lead to acceptance of children providing information were motivation, perception of children, and time to spend with children [15]. In the same study, children also communicated feeling like they could communicate health messages to their families [15]. Factors which were seen to be influential in promoting communication for students were motivation, confidence and ability [15]. These studies indicate that children have the capacity to influence family behaviors through appropriate teaching techniques.

# Chapter III:

## 3. Methods

### 3.1 Background

This study was performed in the context of a school-based WASH intervention in rural Zambia. The intervention was created by FHI 360, USAID and CARE to aid in improving educational status of school children in Eastern Province, Zambia through the provision of access to safe water, sanitation facilities and hygiene education. The intervention, dubbed Schools Promoting Learning Achievement through Sanitation and Hygiene (SPLASH), provides programming for Eastern Province, Zambia in three major districts (Lundazi, Mambwe, and Chipata). SPLASH works with the Ministry of Education in primary schools across the region.

The goal of SPLASH is "to improve health, learning and performance of basic level students and teachers in Eastern Province Zambia" [40]. This goal is achieved through: (1) an increase in access to safe water through borehole construction or rehabilitation; (2) an increase in access to suitable sanitation though the construction of child- and gender-friendly pit latrines; and (3) educating pupils, teachers and the local community on the adoption of improved hygiene practice and WASH technology [40]. SPLASH takes a collaborative and community-building approach when they deliver interventions. Toilets and boreholes are built by employing local community members. In addition to delivering crucial WASH technology, SPLASH also provides behavior change education that is disseminated through

the WASH coordinators at the schools and WASH champions. WASH coordinators are schoolteachers and they choose how to educate children at the school. WASH champions are community members who are seen as key influencers in the community.

Currently, the WASH behavior change strategy is in the process of being created and thus the intervention varies at each school. Nevertheless, WASH information is always disseminated through the school's WASH coordinators and the community WASH champions. Pupils are expected to maintain the WASH-related facilities through the supervision of the WASH coordinators.

## 3.2 Study Setting

This study was conducted in five primary schools in the Lundazi District of Eastern Province, Zambia. Lundazi is on the border of Malawi and approximately 66% of the population is considered to be living in extreme poverty and is one of the poorest provinces in the country (living on less than K32,861 per annum or 5827.37 USD) [41]. Lundazi also is considered to be a rural area of Zambia and has one of the lowest population densities at 6 to 25 people per km² (See Figure 1 below) [42].

The population of Lundazi is primarily made up of the Tumbuka tribe [43]. The official language of Zambia is English and is primarily taught in most schools [44]. However, there are approximately 46 different languages spoken in the country with the two most prominent as Bemba and Nyanja [44]. In Eastern-Province the primary languages are Tumbuka and Chichewa while Nyanja (a pidgin of several different languages) is also spoken

in most areas [43, 44]. Due to the low level of English being spoken in rural areas in Zambia, we conducted all focus groups in Tumbuka and Nyanja.

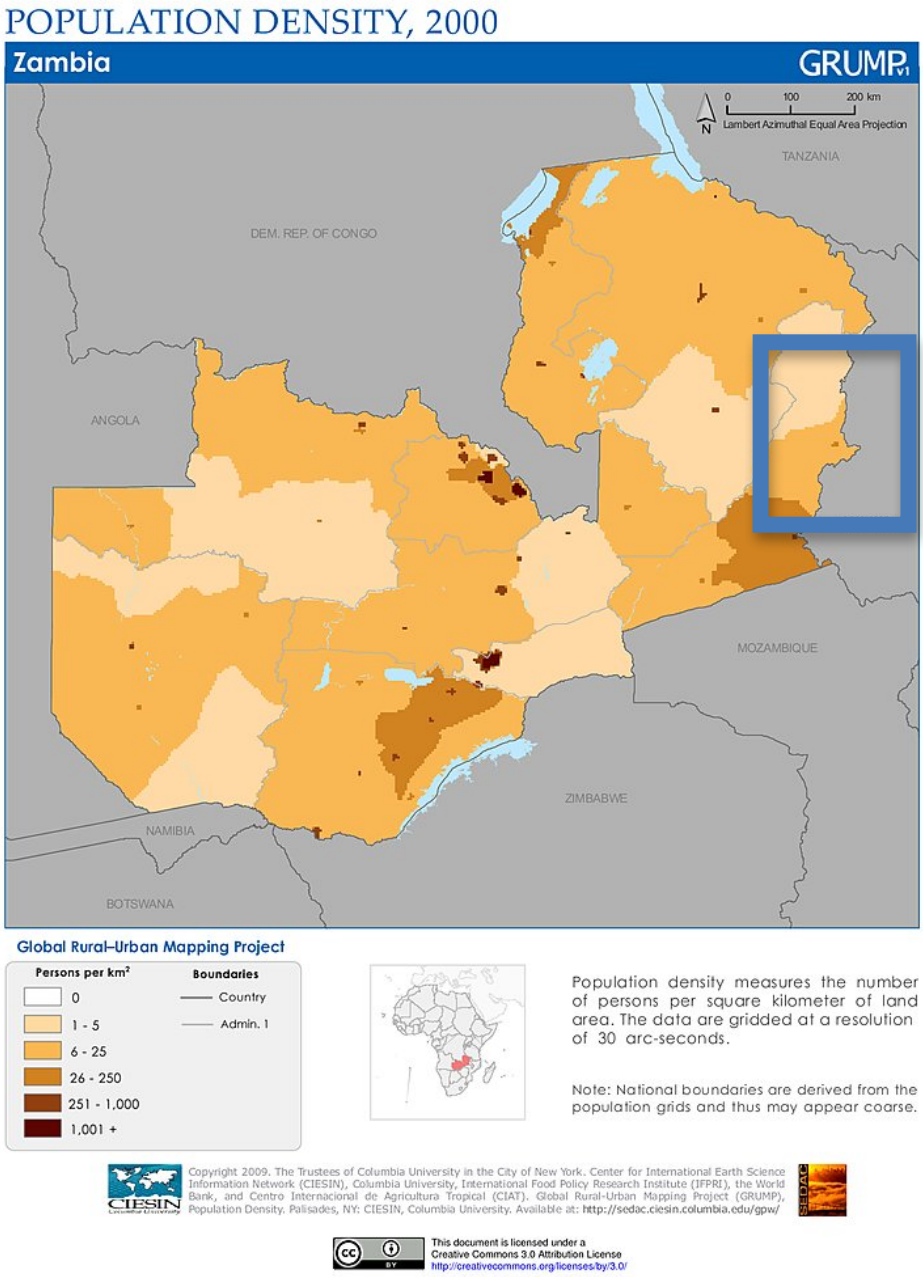



**FIGURE 1: MAP OF ZAMBIA WITH POPULATION DENSITY - IN THE BLUE BOX IS THE STUDY SETTING[45]**

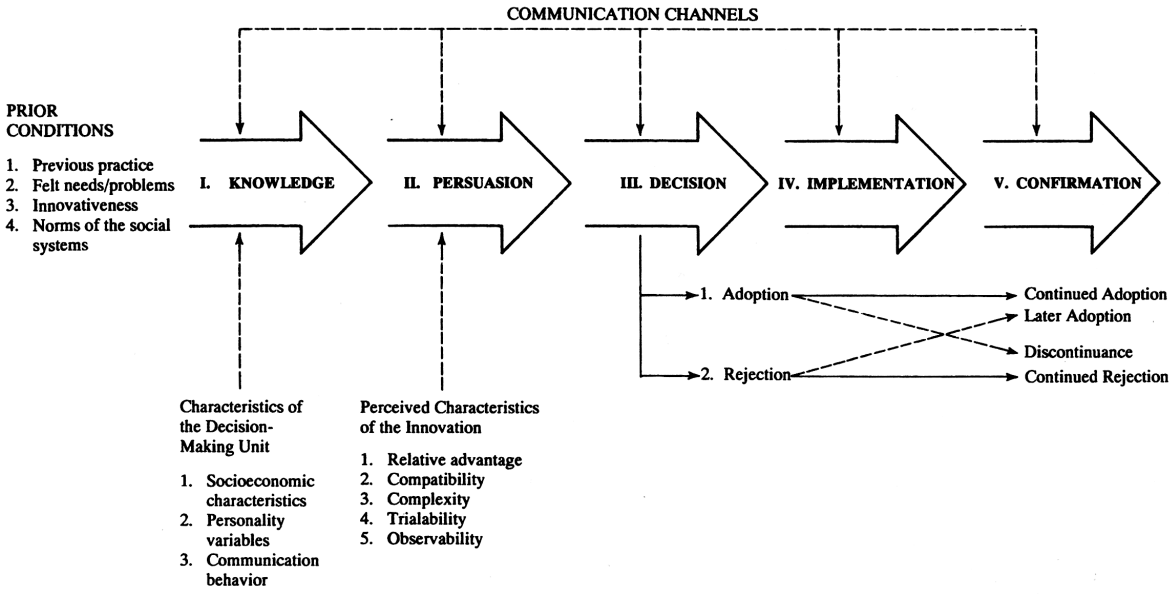
## 3.3 Study Design

This study utilized qualitative methods, including focus group discussions (FGD), participatory learning activities (PLAs) and key informant interviews (KIIs). Data collection took place over five weeks during the months of July and August of 2013 in the Lundazi District of Eastern Province Zambia. Prior to data collection, piloting and revision of the questionnaire and discussion guides took place in June of 2013 in Chipata, Zambia. Five schools were visited to ensure saturation [46]. All FGDs and KIIs were conducted in empty classrooms and offices on school grounds.

### *3.3.1 Diffusion of Innovations*

The theory of Diffusion of Innovations (DoI) developed by Everett Rogers (1995), provided a guiding framework to understanding how children could be change agents for WASH in Zambia [47]. This theory describes how an innovation or idea disseminates from individual utilization to the larger population [47]. Rogers describes three different antecedents that are essential to know in order to understand if the adoption of an innovation is possible: (1) prior conditions (e.g. social norms, felt needs of a population, perceived characteristics of an innovation); (2) knowledge (characteristics of the adopter); (3) persuasion (characteristics of the innovation) (see Figure 2) [47]. Communication channels for eventual adoption of an innovation begin with prior knowledge that leads to persuasion, decision to adopt, implementation of the innovation and, finally confirmation (i.e. continued adoption of the innovation).

**Figure 5-1**. A Model of Five Stages in the Innovation-Decision Process




The *innovation-decision process* is the process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision.

**FIGURE 2 MODEL OF THE DIFFUSION OF INNOVATIONS ADOPTION PROCESS [30]**

## *3.3.2 Two Phased Design*

In an effort to understand the various constructs of the DoI theory, we utilized two different phases of data collection. The objective of phase one was to assess the cultural and normative WASH behaviors of pupils which speaks to antecedent of knowledge (1) the prior conditions, (2) felt needs/problems and (4) norms of the social systems [47]. The objective of phase two was to understand aspects of the characteristics of the decision-making unit (1) socioeconomic characteristics, (2) personality variables and (3) communication behaviors (See Figure 2).

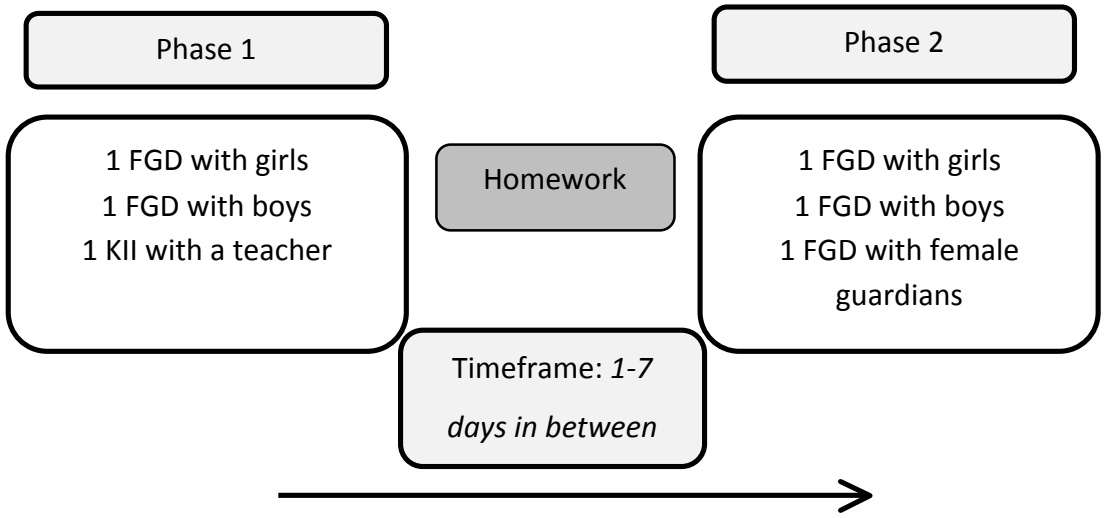



**FIGURE 3 MODEL OF TWO PHASED STUDY DESIGN**

The DoI constructs were utilized to create open-ended questions to ask guardians (i.e. the receivers of the innovation) and pupils (i.e. the communicators of the innovation). We conducted FGDs with pupils and stratified based on the sex of the child. In total, 20 FGDs were conducted with boys and girls ages 10-12 years. Five FGDs were held with female guardians of the boys and girls with a total of 39 female guardians were recruited from five different schools in the Lundazi. Five KIIs were conducted with school teachers who were WASH coordinators at the respective schools. During each FGD with pupils, several different PLA techniques were utilized. PLA implies utilizing collaborative or active learning that encourages the pupil's voice to be heard [48]. Primarily, these activities have been shown to promote discussion amongst children and are easier than a typical question and answer format [48].

Data were collected by two trained research assistants who moderated FGDs and took detailed notes during each session. We utilized three different FGD guides and one KII guide. FGD guides were developed iteratively and were improved after each field visit following debriefings with the research assistants. Moreover, demographic data were collected prior to FGDs with children and with parents using a six-item questionnaire.

### *3.3.3 Phase 1*

During phase one, we conducted two FGDs with pupils, stratified on boys and girls, and one KII with teachers at the school who were WASH coordinators. As key informants, teachers provided a viewpoint regarding activities taking place in school regarding WASH and supplied their opinion on the success of children as agents of change. We asked pupils to draw pictures of their school and home WASH environment. Pupils used the pictures to discuss their normative school and home WASH behaviors (Appendix I). Pupils were then asked to talk about what was different at home and at school in terms of WASH. We also asked pupils to conduct two role-plays. During each role-play, we asked pupils to pretend as if they were speaking to someone at home about WASH. We asked them to first pretend to speak to one of their parents. Next, we asked them to pretend to speak to one of their siblings at home.

At the end of phase one, we encouraged children to communicate WASH-related information to their families. Pupils were given two WASH related homework picture based homework assignments (Figure 4). We chose to utilize picture-based homework assignments in order to address the construct of observability of the innovation (i.e. being able to see the innovation) of the DoI (see Figure 2) [47]. The first assignment included a description of

how to construct a tippy-tap to promote safe handwashing behaviors. A tippy-tap is a low-cost form of WASH technology. It provides the ability to wash hands and lowers the opportunity for potential contamination. In addition, these can be placed near toilets to trigger reminders (see Figure 4). The second assignment included an illustration that shows the health risks of open-defecation and drinking untreated water and this assignment was chosen due to the clear depiction of the potential risks of these behaviors (see Figure 4). In Eastern Province, the literacy rate amongst adults is low [32]. It is especially low in women where only 47.7% of the population are considered to be literate [32]. By using pictures, health messages can be more clearly communicated to less literate populations [49]. Research assistants told pupils to utilize the assignments to speak about drinking clean water, not defecating in the open and hand hygiene WASH. The research assistants did not tell the pupils to make a tippy tap or construct any WASH technology.

#### *3.3.4 Phase 2*

Each school was revisited once for phase two on average three days following phase one activities (with a range of between one and seven days) to allow time for the children to speak to their parents. Upon returning to the same school, the team conducted two more FGDs with pupils stratified on boys and girls to understand whether families were persuaded to adopt the WASH behaviors and technology explained in the homework. We assessed the perspective of the communicator (i.e. schoolchildren) and their attitudes, opinions of doing the assignment. Parents, as the receivers of the innovation, were posed questions related communication behaviors with children and their impression of the WASH behaviors discussed by children.

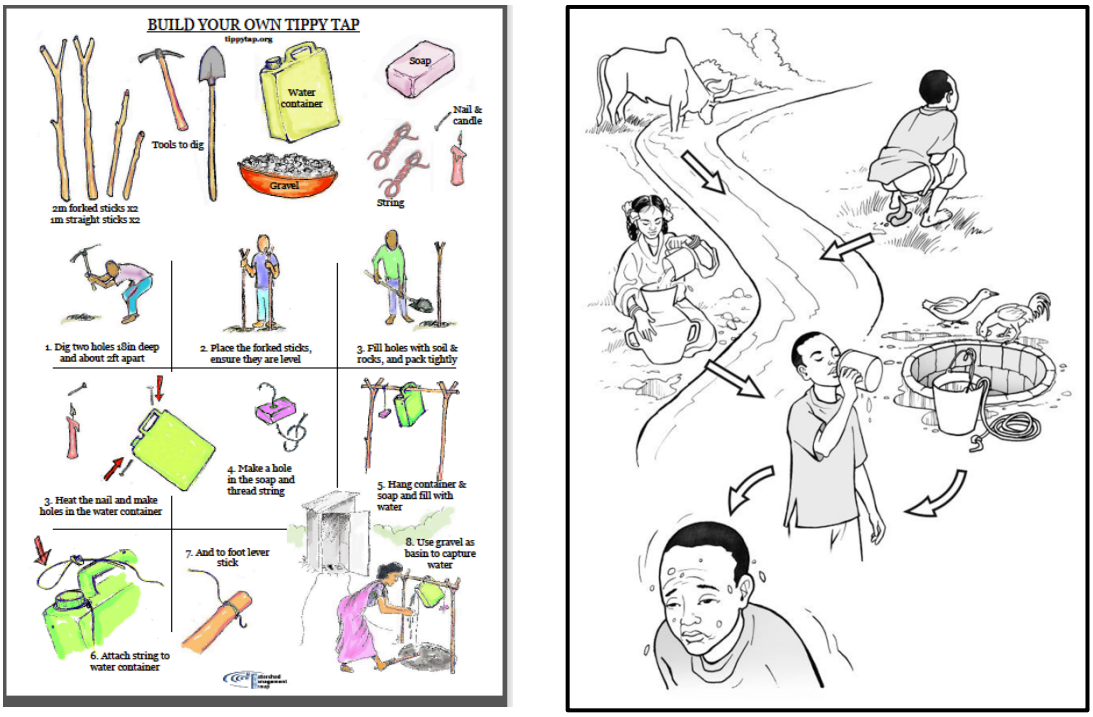



**FIGURE 4 HOMEWORK FROM PHASE ONE; SOURCES: (1) TIPPYTAP.ORG [50]; (2) WASH FRIENDLY SCHOOL PACKETS [51]**

## 3.4 School Selection

Five schools were purposively selected to participate in the study based on the following selection criteria: (1) whether the school had received the SPLASH intervention; (2) The location of the school (peri-urban or rural). Each school visited had received some form of behavior change intervention. Since the SPLASH behavior change protocol had not yet been finalized, every school had received varying degrees of behavior change interventions. Three peri-urban schools were chosen with distances of 17 kilometers, 24 kilometers and 35 kilometers from town. Two schools with distances of 67 kilometers and 86 kilometers from the town center were chosen to represent the more rural schools.

## 3.5 Data Collection and Management

SPLASH and Emory University staff conducted a four-day enumerator training in Chipata, Zambia. The training consisted of thorough ethics training from FHI360, training and practice on qualitative methodology and translation of tools and consent forms [52]. Both enumerators passed the ethics training before conducting research.

### *3.5.1 Participants*

#### 3.5.1.1 Pupils

Five different schools were visited over the course of six weeks of data collection. A total of 80 pupils participated in FGDs using PLAs. At each school, with the aid of a teacher, pupils were purposively sampled with the aid of the teacher based on the following characteristics: they were considered by their teacher to be communicative, between the ages of 8-12 years, grade between the grades 5-7 and they were willing to participate in the study. Pupils were separated into two groups based on sex, and were requested to participate in two different phases of focus group discussions that lasted approximately 70 minutes each.

#### 3.5.1.2 Guardians

A total of 39 female guardians were recruited from 5 different schools in the Lundazi district. We defined female guardians as any form of caretaker (e.g. an aunt, grandmother, mother, stepmother, etc.) to one of the children from FGD phase one. In order to recruit guardians, we asked the school principal to contact their female guardians through their children. They were eligible to participate if they were over the age of 18, spoke the local language of Tumbuka and were willing to participate in the study.

#### 3.5.1.3 Teachers

A total of five different teachers were interviewed as key informants. Teachers were over the age of 18. Four teachers were WASH coordinators at each school and one teacher was only involved in WASH activities at the school. WASH coordinators are teachers in SPLASH schools who elect themselves to be in charge of the WASH management at school. They were interviewed in English by the study supervisor. The interviews lasted approximately 30 minutes each.

**TABLE 1 TOOLS UTILIZED WITH EACH POPULATION**

| **Tool** | **Population** | **Total Number of Participants** | |
|---|---|---|---|
| | | *Phase 1* | *Phase 2* |
| **FGDs** | Girls | 40 | 38 |
| | Boys | 40 | 39 |
| | Female Guardians | **X** | 39 |
| **KIIs** | Teachers | 5 | **X** |

A digital recording device was used to ensure the most accurate information possible was recorded. All recordings will be destroyed and all data has been de-identified to adhere to confidentiality as per approval by Institutional Review Board (IRB) of Emory University, FHI 360, and the ERES Converge IRB (local Zambian IRB).

### *3.5.2 Data Analysis*

Data analysis was conducted by creating inductive and deductive coding utilizing the Grounded Theory approach [53] Deductive coding was gleaned from the DoI theoretical framework. Transcripts translated from the local language, Tumbuka, into the English language were coded and analyzed using MaxQDA software. Transcripts were first read thoroughly using memos to decipher key themes. A codebook was then created using the key themes gleaned from the memos. FGDs were organized and analyzed by school. Textual data were then analyzed using thematic analysis. We coded data across all FGDs using the same codebook and identified key themes that arose. Themes were then compared across schools, sex and whether they were a parent or a pupil to understand the experience on a collective whole.

### *3.5.3 Ethics*

Emory University's Institutional Review Board (IRB), FHI 360's technical and ethical review boards and the Zambian Institutional Review Board (ERES) approved this study (Appendix G). Consent was obtained through *en loco parentis* (in the place of the parent) by a head teacher for all children who participated in the study (Appendix H). Pupils were then explained the study as a group and asked to assent individually prior to commencing each FGD (Appendix H). Female guardians were each read an information sheet that explained the study in the local language of Tumbuka and were asked to consent by providing their thumbprints on a form (Appendix H). Teachers were explained the study individually and were asked to read a sheet informing them of the study (Appendix H). Teachers then were asked to consent by providing a signature and a thumbprint (Appendix H).

# Chapter IV

## 4. Results

To answer our previous research questions we determined four major themes and sub-themes: WASH behaviors and motivators, parental receptiveness, child agency and teacher roles/influence. Thematic results below were garnered from transcripts from FGDs with children and parents and detailed notes taken from KIIs with teachers. Demographic results were collected from questionnaires asked to participants prior to FGDs. Data were also contextualized based on KIIS with teachers.

### 4.1 Demographics

A total of five teachers, 39 female guardians and 80 pupils participated in the study. In Table 2) are demographic characteristics for pupils that participated in the study. The average age of participating pupils was 11.76 (SD=0.66). Ages of boys and girls were similar. The mean age of boy pupils was 11.75 (SD=0.54) while the mean age of girl pupils was 11.77 (SD=0.66). The median grade level of each pupil was five (Range: 3-7). The median grade was similar amongst boys and girls (Median=5). Pupils were posed the question 'Who do you live with in your household?' and were given the option to 'check all that apply' amongst the following options: mother, father, sister, brother, other relatives. The majority of pupils reported living with their mother (n=61, 76.3%) and father (n=60, 75%). While 45.80% of pupils reported living with other relatives (n=35), only 21 pupils (26.30%) reported living with a brother and 26 reported living with a sister (32.50%). Lastly, pupils were asked whether or not they were members of the WASH club. Thirty-six (45%) pupils reported being WASH club members.

**TABLE 2 PUPIL DEMOGRAPHICS**

| Table of Pupil Demographics N=80 | | | |
|---|---|---|---|
| **Characteristic** | | **Mean** | **SD** |
| **Age** | | 11.76 | 0.66 |
| | Boys | 11.75 | 0.54 |
| | Girls | 11.77 | 0.66 |
| | | **Median** | **Range** |
| **Grade** | | 5 | 3-7 |
| | Boys | 5 | 3-7 |
| | Girls | 5 | 4-7 |
| | | ***n=80*** | **%** |
| **Who do you live with in your household?** | | | |
| | Mother | 61 | 76.3% |
| | Father | 60 | 75.0% |
| | Sister | 26 | 32.5% |
| | Brother | 21 | 26.3% |
| | Other Relatives | 35 | 43.8% |
| **WASH Club Membership** | | | |
| | Yes | 36 | 45.0% |
| | No | 44 | 55.0% |

In Table 3 results of the female guardians demographics are below. The average age of participants was 35.35 (SD=7.76). Female guardians were asked to note the number of children in their household who went to a SPLASH school, the median number reported was 2 children (range: 1-5). Female guardians were asked whether they were members of the Parent Teacher Association (PTA) and six (15.4%) participants responded they were members. As for how many people live in the home, the median number of people per home was 7 (range 7-10). Female guardians also reported who were the primary earners in the household. The majority of primary earners are either a father or uncle (n=21, 53.9%). The primary employment of amongst the participants was farmer (n=23, 59.0%),

**TABLE 3 TABLE OF FEMALE GUARDIAN DEMOGRAPHICS**

| Table of Female Guardian Demographics N=33 | | | |
|---|---|---|---|
| **Characteristic** | | **Mean** | **SD** |
| **Age** | | 35.35 | 7.76 |
| | | **Median** | **Range** |
| **Number of children at SPLASH school** | | 2 | 1-5 |
| **Number of people that live in the household** | | 7 | 7-10 |
| | | **n** | **%** |
| **Member of PTA** | | | |
| | Yes | 6 | 15.4% |
| | No | 27 | 69.2% |
| **Primary Household Earner** | | | |
| | Father/Uncle | 21 | 53.9% |
| | Mother | 7 | 17.9% |
| | Both | 5 | 12.8% |
| **Primary Earner's Job** | | | |
| | Farmer | 23 | 59.0% |
| | Private Business | 4 | 10.3% |
| | Teacher | 3 | 7.7% |
| | Other | 3 | 7.7% |

## 4.2 Themes

### *4.2.1 WASH behaviors and determinants*

Pupils were asked to share information regarding the WASH behavior norms of the local population. SPLASH determined three key behaviors they specifically wanted to disseminate: handwashing at key moments, defecating in a toilet and drinking clean water. When asked, pupils also provided information regarding activities of fellow classmates and other members of their community. The primary determinant for safe WASH behaviors was shown to be fear or high perceived risk of disease.

#### 4.2.2.1 WASH Practices at school

Pupils reported practicing safe WASH behaviors being conducted at school. This was related mostly to access to safe WASH technology (i.e. toilets, boreholes and tippy-taps) and also the WASH education being provided by the teachers.

##### *4.2.2.1.1 Handwashing*

Almost all pupils reported regularly washing their hands at key times as defined by SPLASH: after defecation and before eating. Pupils reported regularly using tippy-taps that were strategically placed outside the toilets at every school that was visited. The discussion below exemplifies what most pupils said across all schools when discussing school WASH behaviors.

> ***Facilitator:*** *What time do you wash your hands?*
>
> ***Participant 7:*** *When we come from the toilet.*
>
> ***Participant 1:*** *When our hands are dirty we go and wash our hands.*
>
> ***Participant 7:*** *If you want to eat then you go there and then wash hands and eat.*
>
> ***School 4, Girls, Rural***

Across all FGDs with pupils, they reported being motivated to wash their hands because they wanted to avoid diseases. The interchange below best represents about why pupils said they would wash their hands.

> ***F:*** *Why do you wash your hands?*
>
> ***P2:*** *To prevent some diseases.*
>
> ***School 2, Boys, Peri-Urban***

Despite reporting regular handwashing after key times, there were reports that some pupils were not washing their hands after leaving the latrine at school. Pupils said this was due to a lack of understanding or knowledge about hygiene. In most of the schools, pupils reported that those who practiced open-defecation also would not wash their hands at the key times (i.e. after defecation and before eating). Tippy-taps and other handwashing technologies are normally placed directly outside the toilet. Pupils reported that some others would not wash their hands after practicing open-defecation. At one school, this was pointed out by two boys when they were asked whether all pupils wash their hands.

*P2: Some they wash and others they don't wash.*

*F: Why don't they wash their hands?*

*P1: When they use the bush, they just eat food.*

*School 2, Boys, peri-urban*

#### *4.2.2.1.2 Defecation*

At all schools most pupils reported using the latrines at school. There were many drivers associated with this behavior namely, high perceived risk of disease, one pupil said when asked why she goes to the toilet *"We are scared that we will get sick."* Furthermore, pupils noted a sense of environmental pride. At one peri-urban school one boy noted when asked why he uses a toilet that *"We can destroy the place"*. This sentiment was echoed by a girl participant at a rural school *"*(We use the toilet) *because we want to keep our surroundings clean and healthy."* At another rural school another girl said *"We want our school to look like a Zambian school because now it's looking like a nightclub."*

Yet, at two schools that were considered to be more isolated than the other three schools, pupils reported there were still some students who would not use the latrines and would practice open-defecation. One of the drivers for this behavior was that these pupils were not familiar with toilets and did not have them in their homes.

*F: But why do other people go to the bush?*

*P5: Where they come from there are no toilets around them. So, they prefer going to the bush.*

*P 2: They are not used to toilets, our fellow pupils.*

*School 3, Girls, Rural*

*P1:* (Other Pupils) *go to the bush.*

*F: Why do they do that?*

*P3: Where they come from they don't know toilets.*

*School 4, Boys, Rural*

At one rural school, pupils discussed that other pupils also used the bush when the toilets were dirty or smelly. One girl pupil said: *"The toilets used to smell too much, so we were going to the bush."* At the same school this point was echoed by a boy participant. *"Children go to the bush when the toilets are dirty."*

#### 4.2.2.1.3 Drinking water

All pupils reported using the borehole at school for drinking water which is a clean water source. They reported storing water in containers and tanks at the school for drinking. Pupils understood the reasons why they chose to drink out of a borehole as opposed to other sources. The quote below is a typical response from all of the pupils in the focus group discussions.

*F: Why do you get from the borehole?*

*P1: Because it's clean water.*

*School 2, Girls, Peri-Urban*

#### 4.2.3.1 WASH behaviors at home/village

Pupils reported more safe wash behaviors at schools than at home. Across all schools the WASH behaviors by home and village were similar. Although many pupils reported safe WASH behaviors at home, many pupils also reported other members of their families and villages not practicing safe WASH behaviors. There seemed to be more pupils mentioning unsafe WASH behaviors in more rural areas. This was most likely linked to access to safe WASH technology.

##### *4.2.3.1.1 Handwashing*

Many pupils reported observing unsafe handwashing behaviors in the villages and at home. Although some pupils said they had a tippy-tap at their home, many pupils said they either did not wash their hands at home or, if they did, they did not wash with soap.

*P6: Others at home when they use the toilet they don't wash their hands but here at school we wash our hands*

*P3: Others when they are at home they don't wash with soap*

*School 1, Girls, Peri-Urban*

It was obvious that the school WASH environment had influenced pupil's WASH behaviors at home. In most schools, pupils reported already using tippy-taps regularly at home. Pupils reported awareness of germs and diseases as influencing their home behaviors.

*F: Why does your family wash their hands from the tippy-tap?*

*P7: When you come from the toilet, if you don't wash your hands, and then you get food and eat it you would be eating together with germs.*

*School 3, Boys, Rural*

#### *4.2.3.1.2 Defecation*

Most pupils reported using toilets at home. However, in all school areas, pupils reported that there were some people that still defecated in the open at home. Open-defecation seemed to be linked to a lack of access to toilets, being too lazy to build toilets, and the number of toilets at home. Pupils reported that when people had diarrhea they would often practice open-defecation because there were not enough toilets for everyone in their home. In most school areas they also noted that some children were afraid of toilets because they were often not well made and could easily collapse. The exchange below from one school shows that pupils were afraid of toilets made at home and therefore practiced open-defecation.

*F: Why do others go to the bush?*

*P4: They are scared to use the toilet.*

*P1: They feel lazy to dig the toilets.*

*F: Why do they get scared?*

*P1: They fear that it can fall.*

*School 2, Boys, Peri-urban*

Another pupil reported that during the rainy season toilets often collapse and therefore they do not have access to use them.

*F: So when do you go to the bush?*

*P1: During farming season (rainy season) that's when we go to the bush because the toilets collapse.*

*School 4, Girls, Rural*

However, in one school, pupils noted that even though participants' families had toilets, they would still continue to use the bush.

*F: They made toilets? But, who goes to the bush?*

*P6: They are there in the village. Some people if they come from home and they feel the stomach* (need to defecate), *instead of using the toilet at home they go to the stream and use the bush. But they have toilets.*

*School 1, Girls, Peri-urban*

When asked why people do this, the pupils replied that people used the bush because of ignorance and lack of knowledge.

*Facilitator: Why do they use the bush?*

*P5: Uboya (Ignorance)*

*P8: Uboya (ignorance)*

*P4: This is being dumb, that's what she is saying. Instead of going to the toilet, they go to the bush.*

*School 1, Girls, Peri-urban*

Pupils were also motivated to use the toilet because they cared about their home environment. At one peri-urban school, boys discussed feeling annoyed that people used the bush to defecate because they were harming the environment.

*F: What do you tell those who go to the bush?*

*P1: We get annoyed.*

*P5: I get annoyed*

*F: Why?*

*P5: They destroy the bush.*

*School 2, Boys, Peri-urban*

#### *4.2.3.1.3 Drinking water*

Many pupils reported using different sources of water for different purposes at home. Specifically, pupils listed off fetching water from the borehole (i.e. water pump), a well or a stream. Pupils reported that most people would fetch water from safe sources like the borehole for drinking because they were afraid of getting sick.

**F:** *Why do they fetch water from the water pump?*

**P7:** *Because they want to practice hygiene, in rainy season everything goes in the well, so some fetch from the borehole.*

**P4:** *Fetching from the stream children will get stomach pain (sick).*

*School 3, Boys, Rural*

Well water is considered a potentially unsafe water source because it is open to contamination. Many pupils reported getting water from the well or the stream due the distance of the borehole. However, pupils reported treating the water when they got their water from the well. The following exchange from a peri-urban school represents what most pupils said about home water practices.

**F:** *What do you do with the water you get from the well?*

**P1:** *We boil the water.*

**P7:** *We boil the water*

**F:** *Why do you boil the water?*

**P7:** *To kill the germs.*

**P6:** *We put chlorine.*

**F:** *Do people at your homes do this?*

*P8: Some people boil them, some they put chlorine when it gets cold*

*School 2, Boys, peri-urban*

### *4.2.2 Parent Receptiveness*

Most parents were shown to be receptive to receiving information from children. This receptiveness was based on several nuances to this theme: trust, communication behavior and the value they placed on hygiene.

#### 4.2.2.1 Trust

Trust was pervasive aspect of parent receptiveness across all FGDs. All parents reported receiving and trusting information they received from community health workers, hospitals and physicians. Others discussed trusted sources of information as headmen and other neighbors. Furthermore, children were discussed as being trusted sources of information. Most parents reported not only trusting what their children learned at school, they were also enthusiastic about receiving information from their children. During most of the FGDs with parents they discussed schoolchildren as being regular communicators of information. Most parents reported this trusting as coming from trusting the information their children receive at school. Guardians reported trusting children because they know that children are learning.

*F: Do you trust what they learn at school?*

*All P: We do*

*F: Why?*

*P3: The child becomes clever and there is a difference between me who is at home and one who goes to school.*

*School 5, Guardians, Peri-Urban*

Another guardian said in regards to her child.

*P7: The reason why we trust them is that before a child didn't have knowledge but at school they know how to read the local language (chinyanja) and are able to read English. Because of these things, then we know that our children will be in a good path. We know that he or she will be able to understand what the teacher is saying at school that's why we trust them.*

*School 3, Guardians, Rural*

From the pupil perspective:

*F: Do your parents trust information you receive from school?*

*P2: They trust*

*F: Why do they trust?*

*P3: Some other parents aren't learnt* (ignorant) *so when someone else is learning* (at school) *they trust that person.*

*School 2, Boys, Peri-Urban*

Although there were few instances of parents not being receptive, at one school during a role play pupils played the role of a parent not accepting information in regards to WASH.

*Child: Mama, I have come back from school. Today, they told me that at home we need to dig a toilet and make a place to wash our hands so that when we come out of the toilet we wash our hands with soap.*

*Parent: Which teacher told you that?*

*Child: My teacher, the mistress.*

*Parent: Tell the teacher to dig the toilet herself because us we are used to going to the bush.*

*School 1, Boys, Peri-Urban*

Furthermore, parents reported being receptive to various sources of information; answers varied by school area and proximity to the town. Those who lived closer to the urban centers reported trusting information they received from the radio. It was also evident that they had already been exposed to information regarding WASH from other sources.

*F: Who do you trust with this information?*

*P6: We trust those to talk on the radio and people like you.*

*P5: We can say we trust anyone who talks about hygiene and because with you, you are telling the truth. A lot of people have talked about this.*

*P6: All of you* (SPLASH) *talk about good health and hygiene, which is good.*

*School 2, Guardians, Peri-Urban*

Guardians also discussed traditional community leaders as being sources of trust and influence.

*F: Who influences your community the most?*

*P2: The headman*

*School 5, Guardians, Peri-Urban*

Trust was also discussed in a way that implied parents needed to be able to have visual confirmation of something in order to trust it. This point of view was echoed by most of the pupils. They felt that without the papers we had given them, their parents might not have believed them. At one peri-urban school a boy pupil said when asked why their families believed what they said about WASH "*Because of the papers, they saw them and I spoke nicely."*

Parents reported wanting to learn about WASH from their children in order to lead healthier lives.

*F: Do you think it's appropriate to talk with your children about water, sanitation and hygiene?*

*All P: Yes it's appropriate.*

*P7: Because we all want to be on the right path.*

*School 3, Guardians, Rural*

When asked, parents said they wanted to continue to learn from children. Many said they wanted to receive different information but still continuing on the theme of hygiene. One parent said:

*P3: We want this cleanliness to continue, if cleanliness is not there it should start. Toilets should be seen by everyone. For example, maybe someone is just passing on the road and says 'may I use your toilet'? That person should go and tell the story where he or she is going that cleanliness is so important. Everything should change in our lives the way we have seen the children are being taught here; even us we should change. We used to have dirt in the house; it should be stopped. Let's be clean, this is a new life. SPLASH has come for us to learn and change.*

*School 2, Guardians, Peri-urban*

Although most parents were receptive, a few were not. Those who considered teachers not to be trustworthy also did not want to listen to children because of their age. This seemed to be a minority in the population and this was only reported by children. None of the parents we spoke with from the FGDs shared these points of view.

*P3: I follow (hygiene) but my parents refuse.*

*P6: Some parents say: why I took you to school is to learn but your teacher teaches lies. Then you come from school and teach us. I am ordinary and you were born recently, so stop* (telling me).

*School 1, Girls, Peri-urban*

### *4.2.3 Family WASH Communication*

Pupils spoke about regularly communicating with their families about WASH and about events that happened at school. They said this normally happened as soon as they came home from school and regularly did homework with their parents. Parents also echoed this in FGDs.

> *F: What were you doing at the time?*
>
> *P1: Just sitting and what they learn, they tell us what to do.*
>
> *P8: When we finished our work we just sit and they read their schoolwork.*
>
> *P1: We are resting* (i.e. not working in the field) *nowadays, so we just see what they write.*
>
> *School 4, Guardians, Rural*

Another aspect of communication behavior is that pupils remind their parents regularly about WASH in the home. Although parents noted that a lot of the information children were asked to discuss they already knew, parents noted that children would regularly remind them to practice safe WASH behaviors.

> *P5: We can learn anything about hygiene, information about water and toilets and the feeding habits for home because the child reminds me on things when they talk about them.*
>
> *P2: The same things that my fellow woman has said*
>
> *School 4, Guardians, Rural*

Furthermore, parents reported that children would regularly teach them about what they learned from their teacher.

> *P6: A schoolchild is a great teacher as well and also tells the parents that this what they were saying at school*

***F:*** *A schoolchild is a great teacher?*

***P6:*** *At times you as the mother, you don't know anything, so they remind us that this is what the teacher said you should do this, do this and this.*

***P4:*** *A child is also a teacher. They teach us what they learn at school. They tell us at home not to put things carelessly. They say the teacher told us not to do this but you do that.*

*School 2, Guardians, Peri-urban*

Children are also able to explain and show information to their parents. When asking parents how the school communicates with them, most parents said that they regularly send information through children. Children have the responsibility of explaining and showing things to their parents. One guardian from a peri-urban school said in regards to communicating with her child: "*My child from school always explains things they learn from school."*

During the study we asked pupils to explain pictorial information to their parents. Pupils were able to easily show their parents what to do. Pupils reported feeling confident and able to explain and show based on the pictorial evidence. Furthermore, there was evidence to show that they went beyond the scope of what we told them to do. Many pupils and parents mentioned that pupils talked with many different people not just a parent. Moreover, they would talk about actions to creating a safe WASH environment. Many pupils also talked about aspects of WASH that the research assistants did not talk to them about. For example at one school a female guardian said when asked how the child spoke to them:

***P3:*** *My child came with papers and told me that the SPLASH people told them* (to talk about WASH). *She explained everything and showed me how to make a tippy tap. So, I also told her to*

*tell the grandmother and everyone was gathered to listen to what she had told me and also mentioned that if there is no soap for washing hands you can use ash.*

*School 5, Guardians, Peri-urban*

Pupils noted that they must show respect when speaking with their parents. During the role-plays where children would show how they speak with their parents, most children kneeled on the floor. This is a way to show respect. This nuance, children reported, was very important to whether or not the parent was receptive to the information. When pupils were asked to report what they saw during a role-play at one school commented, they responded:

*P4: The child approached the parents with respect.*

*F: How do you approach your parents?*

*P1: I kneel down.*

*School 2, Boys, Peri-Urban*

#### 4.2.3.1 Value of Hygiene

Parents expressed valuing hygiene. This was common throughout all of the FGDs with female guardians.

*F: What would you like to do different in the future?*

*P1: We would like to continue with hygiene.*

*P7: Everything* (about WASH) *has to be done because all is important for our life and living a long time.*

*School 5, Guardians, Peri-Urban*

Female guardians expressed knowing hygiene was important because they had already heard about it from doctors, community health workers and the radio.

### *4.2.4 Child agency*

The theme of child agency was pervasive across all levels of data collection. Agency was discussed in many different ways. Pupils expressed being able to change and influence the due to four main precursors: through collaboration with family members, being confident, desire to change and influencing their environment.

#### 4.2.4.1 Collaboration

Most parents were receptive to the idea of pupils influencing their environment. However, pupils spoke about being aware of needing to help their families in order to be able to change their environment. Pupils reported working in collaboration with their families to make a safe WASH environment.

> ***F:*** *Who would you talk to about water and keeping clean?*
>
> ***P7:*** *My uncle*
>
> ***P 2:*** *My uncle doesn't have power to dig a toilet alone.*
>
> ***School 3, Girls, Rural***

The theme of collaboration was present on all of the FGDs. At one school when pupils were also asked to role play out how they would talk to their family about WASH, the theme of collaboration was expressed very well.

> ***Child:*** *At school they give us homework about usage and cleanliness of water, toilets and also how to make a tippy-tap. So, I want you to help me.*
>
> ***Parent:*** *For us to do all of what you have said we need to be cooperative.*
>
> ***Child:*** *Are we going to do what I have said?*
>
> ***Parent:*** *We will do together.*
>
> ***School 4, Boys, Rural***

#### 4.2.4.2 Confidence

Pupils across all FGDs expressed feeling confident to be able to change their families WASH environment. In the exchange below pupils responded when asked how they felt about informing their parents about WASH.

*P1:* (We felt) *Confident because we manage to talk with our parents.*

*F: Is it difficult?*

*All P: No*

*P8: Because we talk with confidence.*

***School 4, Boys, Rural***

***F:*** *How did you feel showing your parents what to do?*

***P2:*** *We really felt happy.*

***P7:*** *I felt good.*

***F:*** *Why did you feel good?*

***P7:*** *Because they were nice, they agreed and said they will make what we told them, a tippy-tap.*

***P8:*** *They were following what we were telling them.*

***School 2, Boys, Peri-Urban***

#### 4.2.4.3 Desire to change

Many children spoke about the desire to teach and for their families to understand about WASH. They were motivated by the perceived risk of becoming sick. Pupils expressed that they wanted family members to know about hygiene and cleanliness to prevent diseases. One pupil responded when asked how she tells her family about WASH:

*P6: When I tell my mother she needs to listen because she stopped school a long time ago. When I tell her: this is what we learnt at school, she needs to hear it so that diseases are reduced. At home she will know to tell my brothers and sisters. If my sibling doesn't listen they will start cooking without washing their hands. If they come from the toilet and they didn't wash their hands, I'm supposed to tell them and tell mum that they didn't wash their hands before eating.*

*School 1, Girl, Peri-urban*

When asked, pupils reported that they felt obligated to tell people to keep their environment clean.

*P1: We tell them that you are destroying the water. We tell them to stop using the bush and that they should be going to the toilet because rainy season those will go to the water that we use.*

*School 2, Boys, Peri-urban*

They also knew of actionable steps to take in order to keep people from not following safe WASH behaviors. At two schools they reported knowing to speak with the community WASH champion when their families were not listening. The following quote represents how schoolchildren communicated WASH. At one school, when pupils were asked what they tell their families, they responded:

*P7: We tell them that we would have them arrested.*

*F: Who can arrest them?*

*P7: Those who teach about hygiene* (WASH Community Champion).

*School 2, Boys, Peri-urban*

Although message dissemination was mostly discussed in a positive way, at another school boys during a role-play showed the possible conflict that pupils might have when a parent is not receptive. Pupils displayed resourcefulness in knowing how to influence change in the

home by contacting a health care professional and WASH champion. Furthermore, they presented to be able to change their physical environment to enable WASH behaviors.

> ***Child:*** *You are used to* (open-defecation) *but personally I will dig a pit for a toilet.*
>
> ***Parent:*** *When you dig a pit you should move out of this place because this is my house.*
>
> ***Child:*** *I will have you arrested by those who inspects the toilet.*
>
> ***Parent:*** *Go ahead and tell them to understand because me I am used to going to the bush.*
>
> ***Child:*** *But you don't you know that you can die and I can continue to live.*
>
> ***Parent:*** *Can I die because of not digging the toilet?*
>
> ***Child:*** *During the rainy season the rains can wash away all of the feces to the water and arrive in the water and then the same water you drink from the river or stream.*
>
> ***Parents:*** *That water you are talking about is very good we started a long time drinking water from there so when you go back and tell your teacher that I have refused.*
>
> ***Child:*** *I will tell people from the hospital that you have refused and that you are used to drinking water from the stream.*
>
> ***School 1, Boys, Rural***

This was echoed at the same school by girls.

> ***F:*** *Other things, what if your parent refuses to wash their hands, how are you going to tell them?*
>
> ***P6:*** *We will tell them to do it. Also we will tell them what the champion from the WASH club teaches us, we go in the village and teach our parents. Our parents some of them refuses but some accept. So the WASH club champion should make sure people start washing their hands and report.*
>
> ***School 1, Girls, Peri-Urban***

After watching a role-play where a student was speaking with her mother about WASH, we asked pupils why the child spoke to her mother about WASH. One pupil responded with the following:

> *P1: If you don't have a toilet you should tell your mother to make starting from today. The way we have learned. You should tell them about this hygiene. You should tell them everything; like, what you are doing is bad. You should tell them starting from today.*
>
> *School 4, Girls, Rural*

Pupils also expressed their desire to change their environment but they knew they needed help from their parents, especially their fathers, in order to do so. This sentiment is exemplified in the quote below:

> *F: What do you say to your parents?*
>
> *P3: That father you should dig a toilet we admire those at school.*
>
> *School 3, Girls, Rural*

### *4.2.5 Teacher Influence*

Teachers are perceived as trusted sources of information for parents and children. Teachers reported communicating about WASH regularly in the classroom. They expressed utilizing different techniques to engage children in WASH. Teachers discussed instructing children in assemblies as well as engaging children in WASH clubs. When asked how they learn about WASH at one school pupils reported learning during assembly and in the classroom.

> *F: How do they teach you?*
>
> *P8: When we are at the assembly.*
>
> *P2: From the classroom.*
>
> *F: From the assembly, how do they do it?*

***P4:*** *They tell us what we are supposed to do.*

***P6:*** *They tell us*

***School 5, Boys, Peri-urban***

***F:*** *Who taught about water and sanitation?*

***P7:*** *We have learned from our teacher.*

***P8:*** *From the madam and our other teacher.*

***School 3, Girls, Rural***


**FIGURE 5 MANY TEACHERS ENGAGED CHILDREN BY HAVING THEM WRITE MESSAGES**

Although teachers attempted to do activities with children regarding WASH, mostly they reported telling and showing children how to interact with technology and what to do. When asking teachers what they did with pupils, they spoke about a few activities in WASH club. Some of the WASH club activities included having pupils act out diseases, modeling WASH

practices for pupils and having pupils write messages to remind each other of safe WASH behaviors (Figure 5). These methods were chosen to engage pupils actively. The most common activity discussed was learning about WASH during regular class time. Teachers reported telling pupils what to do during their classes an example was one teacher said they would teach an aspect of WASH and then say go and teach your family. Another popular technique was addressing children during assembly. Assembly is a time when all of the pupils are gathered together before or after classes. Teachers and WASH coordinators use this time to model how to use technology to pupils. At one school, assembly was also called WASH club where all of the students would hear about WASH every Wednesday afternoon in a large group setting. At this school the teacher also reported using drama and creative techniques to talk about WASH. All teachers mentioned there being a lack of easy and understandable activities and resources to effectively teach about WASH. There was evidence in three of the schools that pupils utilized drama and music to talk about WASH. These were simple and low-cost ways for teachers to engage students however, teachers did not discuss the frequency or duration of these activities.

# Chapter V

# 5. Discussion

## 5.1 Primary Question: What is the potential for children to become agents of change for water, sanitation and hygiene in rural Eastern Zambia?

We found considerable evidence that children may serve as effective and efficient change agents. Pupils were shown to be able to influence WASH behaviors and technology adoption among their families in Eastern Zambia. Research on this question has been limited, and our data show, that at least in similar contexts, there is considerable potential for structured engagement with pupils as a way to influence practices at home. Schoolchildren were practicing safe WASH behaviors and were confident in their ability to be able to talk about WASH. Female guardians were receptive to learning about WASH from their children. Parents expressed trusting their children because they attended school and further, trusting their teachers. Pupils were viewed as trustworthy from parents because there was a cultural value placed on WASH and on education. Below is a conceptual framework that was created in response to the primary research question.

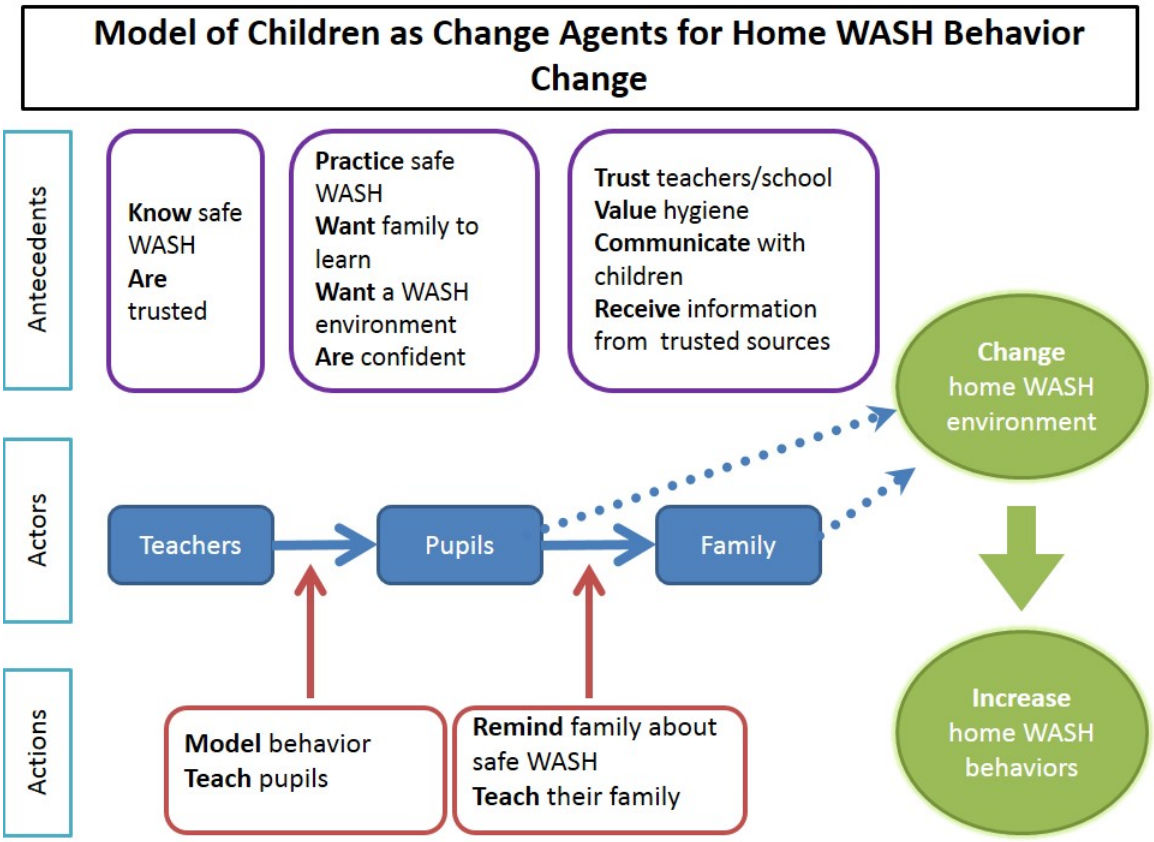



**FIGURE 6 MODEL OF CHILDREN AS CHANGE AGENTS FOR HOME WASH BEHAVIOR CHANGE**

Our data identified several antecedents necessary for schoolchildren to be able to influence their home WASH environment (Figure 6). It includes the action steps involved in order to disseminate messages from school to home and how to change the home environment. The model starts with teachers as the beginning of the chain of communication, modeling and teaching children about WASH. The information then goes to pupils who disseminate information subsequently to their families. Taking into account all of the various nuances, the model leads to a change in WASH environment, brought about by both children and parents, and ultimately potentially a change in family WASH behavior. Another aspect about the framework above is that it shows that the family must trust schoolchildren. This was consistent with other studies that looked at children as change agents for health [10, 13, 15].

We found that schoolchildren were driving the WASH change at home in two ways. First, schoolchildren were regularly reminding and teaching their family members about WASH behaviors or technology. Second, schoolchildren also discussed directly influencing the home WASH environment itself. Practicing safe WASH behaviors is heavily influenced by access to a safe WASH environment that includes access to boreholes, access to tippy taps or a handwashing station and a latrine in some form [23]. Pupils showed to recognize this necessity. They reported changing their home WASH environment by physically building a tippy-tap themselves. Tippy-taps are easy to construct for children if they have access to the necessary materials (i.e. plastic jug, sticks and rope). We asked pupils to discuss not defecating in the open and many pupils elected to speak to their families about building a latrine. Building a latrine requires a tremendous amount of manpower and physical ability that is outside the scope of what a child can do alone [54]. When they felt they could not physically change their environment, they enlisted the help of an older siblings or a parent. Pupils discussed speaking to their parents (mostly fathers) about building more latrines at home. We suppose this was due to the fact that pupils knew that was an aspect of WASH technology that was outside of their physical control.

### 5.1.1 Secondary Question 1: What are the WASH behaviors of school-aged children and existing cultural norms and practices of WASH in Eastern Zambia?

The normative behaviors described by pupils at the school level were consistent with previous school WASH studies [55]. Most pupils reported using latrines for defecation, washing hands at key times and drinking clean, safe water in the school area. One of the main determinants for all three behaviors was the perceived risk of disease. We feel this

perceived risk was most likely taught to the pupils by the WASH teachers at the schools since it was consistent among pupils. If it had been learned at home, the answers would possibly differ more.

The school WASH environment was shown to be an enabling factor to safe WASH practices. However, despite there being a WASH environment that contained safe technology, there were still pupils that would continue to defecate in the open and not wash their hands at key times (i.e. before eating and after defecation). This implies that perhaps simply the provision of WASH technology is not sufficient to incite safe behaviors. It was unanticipated that some pupils were not responding to a safe WASH environment. Pupils who were not using latrines or tippy-taps were discussed as being ignorant or unfamiliar with the technology. Some were also afraid of latrines because they thought they could fall. Although thoroughly familiarizing pupils with toilets is an aspect of school WASH protocol, maybe methodologies addressing pupil fear should be discussed [28]. Perhaps identifying pupils who might not be familiar with toilets or other safe WASH technology should receive supplemental training or instruction. This could ensure more familiarity and comfort with the technology.

Pupils reported that safe WASH behaviors were not as common in the home area. Although many discussed drinking safe water, some lived far away from the borehole at school. Their closest water source could be considered unsafe (i.e. a stream or an unprotected well). Pupils mentioned boiling or using chlorine to treat water before consumption when seeking water at unsafe sources. However, there are numerous barriers to point-of-use water treatment

(e.g. cost and time) [56]. Fetching groundwater to start with would be the more conservative option for families in the SPLASH area. As for washing hands, many pupils discussed using a tippy-tap at home. Although we cannot assess causality, it is possible that the tippy-taps were constructed at home after the SPLASH intervention. However, pupils discussed lacking access to soap and not being able to effectively wash their hands. Access to latrines also seemed to be problematic at home. Toilets in the home area were discussed as being dangerous and scary or nonexistent. Although pupils knew that toilet use was essential at home for health, there were many barriers to being able to effectively use home latrines.

### 5.1.2 Secondary Question 2: How are the school children in the SPLASH study area able to communicate WASH information learned from school to home?

Pupils often do not have their voices and opinions heard by adults [57] yet, it was still evident that pupils had a sense of agency in regards to WASH. Essential antecedents that were necessary to pupils' sense of agency were similar to a previous feasibility study in Tanzania as: feeling confident and motivated to change [15]. Pupils had a strong desire for their families to know about WASH, mostly, because they wanted their families to live long lives and be healthy. A different antecedent that has not previously been identified was that pupils wanted to transform their physical environment to enable their families to change their behaviors. This was an unexpected aspect to this study. Our research assistants told pupils to discuss drinking clean water, not practicing open defecation and hand hygiene with their families (Appendix C). Pupils took this a step further and asked their families to make WASH enabling technology in their home environment. Adult caregivers are often very busy and sometimes too busy to increase WASH technology in the home. Pupils recognized not

only the need for these technologies to enable a WASH environment, but also felt able to execute it on their own.

### 5.1.3 Secondary Question 3: How are parents receptive to children being agents of WASH behavior change?

We found that parents were receptive to learning from schoolchildren because they valued their children's education. Many of the parents discussed having not finished school and that they enjoyed learning new content from their children. Specifically, many parents discussed doing homework with their pupils and regularly talking to them about WASH. WASH was shown to be a content area about which parents were receptive to learning. The previous studies that exist on this topic show that families tend to be receptive to information from their children [13, 15, 36, 58]. In the Zambian culture, the data showed that parents saw children as knowledgeable individuals. Pupils and female guardians both expressed that approaching adults with respect was an important nuance to communication. Although previous studies have not discussed this aspect, it is an intuitive feature of child to parent communication. Parents are often seen as the heads of the household in many societies. In Zambia, specifically fathers are seen as decision makers in the home and it is key to approach elders with respect [59].

There was also evidence that some adults were not receptive to receiving information from children. Although this seemed to be an irregularity, pupils still discussed some adults not listening to them. This could be explained by perhaps adults who had not been previously engaged on WASH behaviors or technology by other key community influencers or mass media. Another possible explanation is that these adults did not value pupils as

knowledgeable. Since we only heard about some people not being receptive from the pupil perspective, it is difficult to know exact reasons for this nuance. A final explanation is that perhaps these people could be considered "laggards" as defined by Everett Rogers as people who refuse new technology or innovation [47]. Laggards are considered those who focus on traditions and will only accept a new innovation after it becomes and entrenched aspect of society [47].

### 5.1.4 Secondary Question 4: What role do teachers play in promoting child-to-child and child-to-parent health behavior change?

Teachers were shown to be an important part of pupils communicating WASH to their families and families being receptive. As the beginning of the chain of communication, teachers are seen as trusted by parents and children. Previous research shows that children can serve best as change agents when being taught using participatory and action-oriented education [13, 38, 58]. This is consistent with two other studies that looked at children as potential health promoters [15, 58]. Pupils were discussing WASH dissemination as a sense of duty; this was most likely cultivated by their teachers. Although we do not know specifically if teachers were the cause of this agency, pupils said that their teachers told them to speak to their families about WASH.

## 5.2 Diffusion of Innovations

To our knowledge, this was the first theory-driven study specifically assessing whether children could be agents of change for WASH. The constructs from the DoI utilized to guide this study (1) prior conditions (e.g. social norms, felt needs of a population, perceived characteristics of an innovation); (2) knowledge (characteristics of the adopter); (3) persuasion (characteristics of the innovation) (see Figure 2) were helpful in gaining insights into drivers for adoption in this area [47]. Since technology is key for safe WASH behavior, understanding the various antecedents necessary for adoption can allow for future programmatic recommendations to be able to focus in on specific drivers [23].

In the DoI, Rogers also places an importance on communication channels. In this case schoolchildren are one of a few different communication channels. Although some parents reported receiving information from mass media (i.e. the radio), they also mentioned children as communicators of information. According to the Bass Communication model as adapted by the DoI, interpersonal communication helps individuals adopt an innovation faster more than mass-media communication [47]. Face-to-face communication has more weight and value than mass communication. Therefore although some parents noted that they did have contact with mass media, face-to-face communication still seems to be more relevant.

## 5.3 Strengths

This study had many strengths most of which could be attributed to the study design and methodology. The creative activities allowed children to talk and express themselves. Pupils and parents both reported enjoying the activities involved in the FGDs. This study went more in-depth than previous studies and looked at various perspectives (i.e. teachers, children, parents). Theory added a clear guiding framework to allow for more systematic and structured data collection. Moreover, it allowed us to contextualize message dissemination from pupils in the larger scheme of message communication.

While there is literature investigating children as agents of change, these studies looked at aspects of WASH or other health concepts but did not specifically look holistically at WASH [10, 14, 15, 36, 37, 39]. These previous studies used different techniques to assess whether children could become agents of change for WASH. Namely, Omyango et al. conducted a quasi-experimental study to assess whether a school-based health course could influence children disseminating messages to the home. They assessed sanitary behaviors through household observation to assess behavior adoption [13]. Our study allowed pupils to explore and engage in various participatory learning activities. One of the greatest strengths of the study was that we gave pupils a specific at home assignment to do with their families regarding WASH practices and technology. This homework was shown to be very well received from the pupil and female guardian perspective. By actually giving a specific assignment we were able to assess the various mechanisms children use to teach their families.

Utilizing qualitative methodology was also an appropriate technique to utilize in order to understand why and how children could be agents of change. There is currently a lack of data on the concept of children as change agents. Using qualitative methods allowed us to explore and understand the varying aspects of the culture. Moreover, we did not want to assume that children were practicing WASH behaviors or that they were trusted sources of information. Because this study was exploratory in nature, it allowed us to highlight these research gaps and make context specific recommendations based upon our findings for SPLASH. An additional strength was the remarkably uniform responses across all schools and participants. We were able to learn that across several schools in different areas, pupils are generally appreciated and valued as message diffusers.

## 5.4 Limitations

There are many limitations to this study. First, discussions were conducted in the local language of Tumbuka and then transcribed and translated into English. English was not the first language of the facilitators and translations could sometimes be confusing. We conducted quality control checks on the translations, but there is always potential for misunderstanding nuances due to the translation. Another potential limitation was the limited qualitative data experience of the field workers. Although the field workers had research experience, this was primarily in quantitative data collection. Thus, potential opportunities for probing further on discussion were often missed. There were also issues with social desirability where, at times, due to our association with SPLASH, participants would respond with what they thought we wanted to hear. Moreover, there is a lack of generalizability of the findings to other populations. It would be difficult, for example, to try and generalize these findings to non-school children. In addition, we only spoke to female

guardians; we did not receive the perspective of men. Men might have different points of view to the women with whom we spoke. Fathers were discussed by pupils as key in building latrines. It could be advantageous to hear their points of view on learning WASH information from children. In addition, we might not have given families enough time to take action to act on the homework assignment. In certain schools we returned after only one day and many parents said they did not have enough time to take action. Another limitation was we cannot assess causality or temporality as to whether or not parents appreciated receiving messages from children because they had already known about WASH from the hospital. A final limitation was that the quality of FGDs varied. In some FGDs participation was pervasive amongst all participants. However, in a few FGDs primarily one or two participants dominated the conversations. In one FGD, girls did not speak and would only provide one-word answers when prompted.

## 5.5 Recommendations

Our study found that schoolchildren have a strong potential as change agents in rural Eastern Zambia. Pupils are seen as valued sources of information and parents communicate with children regularly through homework. Schools should therefore integrate key WASH information into everyday curricula. The homework assignment we gave the pupils was well received by both pupils and families alike. Teachers should assign WASH-related activities to do at home with their parents. SPLASH should invest more in providing pictorial handouts children can bring home to their parents as they provide opportunities for children to interact with their parents. This would be low cost way to disseminate information, especially instructions for WASH technology (e.g. tippy-taps or simple pit latrines). Homework

assignments should clearly depict health risks as most pupils and parents discussed fear of disease as being a primary determinant for safe WASH behavior.

In order to encourage family receptiveness to new health information, guardians are probably more receptive if they have previously heard information from some sort of media or trusted information source. For WASH interventions perhaps first engaging families through mass media or engaging key community influencers like traditional leadership (i.e. headmen or chiefs) to instill value of a certain practice or behavior would increase community uptake. Then schoolchildren can serve as in home reminders or technology disseminators based on previously disseminated information.

For pupils who are not currently practicing safe WASH behaviors, teachers should focus on familiarizing them more with WASH technology. Since some pupils indicated sometimes being afraid of toilets, perhaps reminding them that SPLASH toilets are safe would encourage them to not defecate in the open. Individual attention might be needed for certain pupils who are afraid of toilets and who continue to use the bush for defecation. Addressing environmental barriers, such as making sure toilets are kept clean are easy ways to ensure that pupils would continue to use toilets.

As for research, a study that hones in on teachers would be an essential next step to this study. A possible follow up to this study would be to experiment with different teaching techniques to further understand what possible methodologies work best for child to community communication. The study could have some teachers give pupils participatory,

action-oriented homework to do with their families while other teachers could teach using more didactic techniques. Dissemination could then be assessed by seeing if families implemented the homework. Furthermore, a qualitative follow up study that also includes men would aid in understanding further family receptiveness.

Since the tools and methods we used were very helpful in gaining an understanding of the potential for children as change agents, this study could also be implemented in another school-based WASH intervention to see if this would be possible in another context. In addition, school-based WASH interventions should also consider collecting baseline data on community WASH practices and technology when intervening. They should then evaluate community WASH technology uptake based on child communication. As one of the aspects of school-based WASH protocol is that schoolchildren can impact their community, this should be regularly evaluated after implementation.

## 5.6 Public Health Implications

Health communication and education is an essential aspect to any public health intervention. Since poor WASH practices, especially open-defecation, are problematic in many parts of the world, education is needed. Rural areas, particularly, show to have an even higher level of the population practicing unsafe WASH behaviors. Although in rural areas health communication can be challenging, schools are ubiquitous in most areas of the world. Therefore, schools can be potential areas to disseminate health-focused messages in even the most remote area to invoke community change. Low-cost, safe WASH technology instructions can also be disseminated through schools. Having a healthier home

environment for children also implies that there is less opportunity for diarrheal illness and other unsafe WASH related pathogens. Sustainability of school-based WASH programs can also greatly benefit from children influencing their community. School WASH interventions tend to be more successful in the long-term when the community is involved. Since schoolchildren are seen as valued sources of information in many communities, not only WASH messaging but potentially other health messages could be passed through children from the school to change home behaviors.

## 5.7 Conclusions

The findings show there is strong evidence to support that children can serve as agents of change for WASH in the context of a school-based WASH intervention. The study showed that pupils utilize techniques like altering their environment, reminding their family regularly and communicating using their homework to influence change at the home level. Families also were shown to be receptive due to previous exposure to WASH and an existing desire to change. School-based WASH programs should utilize these findings to create WASH based homework in schools to encourage community change. Moreover, further research is necessary to understand the exact teaching methodologies necessary to leverage this communication technique further.

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# Appendices

## Appendix A. Focus Group Discussion Guides for Pupils (Phase 1)

### Consent Process

*Assent forms for focus group participants should be completed before any focus groups start. Below is a summary of the information in the consent form facilitators should use to make sure pupils understand the information in the consent form.*
*After participants assent orally give them a number nametag, note their name on the nametag as well.*

### Introduction

Thank you for coming my name is *(moderator)* and this is (*notetaker)*

We are doing a study with Emory University and SPLASH. The purpose of this study is to understand what you know about water, sanitation and hygiene. We also would like to understand how you communicate with your parents.
The information from the study will be used to inform current water, sanitation and hygiene education intervention in the schools where you attend.

We asked you to participate because we wanted to know your way of life. We want to understand what you know about water, sanitation and hygiene.

Do you all have any questions before we begin?

### Recording

This is a digital recording device (*hold up recorder*). Just to remind you, we are going to record the conversation in order to make sure we have the most accurate information possible, is this ok? We will record but after we will listen to the conversation and type up what you say. We will take out anything that is linked to you (your name, where you live.). We will share the recording only with members of the study team. Then we will delete the recording.

Are you ok to be recorded?

*TURN ON RECORDER*

Are you ok to be recorded?
*Say school name, date, time, and FGD with girls or boys phase 2*

## Ground rules

*Before the FGD starts, make sure that you go over the ground rules with the children*
Before we begin, I want to give you some guidelines about our discussion.
***READ ALL OF THE GROUND RULES THEY ARE ALL IMPORTANT***

- This is not a class or for a grade, feel free to speak as you like
- You do not need to stand up or raise your hand to talk
- Respect each other's points of view
- Do not all speak at the same time
- We want you to speak to each other not just to me
- Please speak loudly so everyone can hear you

## Warm up 5 minutes

We want to get to know you! Please tell us your name, your favorite subject in school and why. I'll start, my name is (*moderator)* and my favorite subject is _____ because of _____.
*Everyone go around the table and introduce himself or herself. Have them say what their favorite subject is in school and why to everyone in the group.*

## Part I. WASH Behaviors –Drawing 20- 25 minutes

*Objective: To understand and compare the WASH environments/activities at school and home. This should take no more than 20-25 minutes. The probes are to aid in helping discussion but all do not need to be asked! The children need to be speaking to each other not just to the moderator.*

## SCHOOL (drawing should take 5 minutes) Ask questions (5 minutes)

OK, now we'd like to know about what water, sanitation and hygiene are like at your school. We will give you about 5 minutes, please make a drawing of your school. It doesn't need to be perfect.
Include:

- Where you and your friends get your water for drinking,
- Where you and your friends answer the call of nature or defecate *(Don't say toilet!!)*
- Where you and your friends wash your hands.
- The paths that you take for defecation and other water and sanitation practices.

Please hold up your drawings and show them to everyone Wow!! Those are great!!

1. Can you tell me where you get your **water**?

- Who gets their water from there?
- Why do people do that?
- What do you put the water in (like bottles, containers, your hand)?

2. Can you tell me **where you answer the call of nature or defecate** at school?
- Do all pupils do this?
- Are there pupils who do their business in other places?
- Why do pupils do that?
- Are there times that you have used the bush? – Why do pupils use the bush?

3. Can you tell me where you **wash your hands**?
- When do children at your school wash hands?
- Are there any other pupils who do that
- Are there any pupils who don't do that?
- Why do they do that?
- When do they do that?

HOME Draw your home (drawing should take 5 minutes)

We'd now like to learn about your homes. Turn over your piece of paper and draw your house. It doesn't need to be perfect and please be as truthful as you can. We are not here to judge you.

Include:
- Where you and your family fetch water
- Where you store water get your water for drinking
- Where you do your business (defecate)
- Where you wash your hands (if you wash your hands at home)

Please hold up your drawings and show them to everyone Wow!! Those are great!!

1. Can you tell me where do you get your **water**?
- Does everyone in your village get water like this?
- Why do people in the village get water from different sources?
- Do people use different sources for different things, like drinking, washing, cooking, cleaning, and bathing?
- How do you store your water?

2. Can you tell me **where you answer the call of nature or defecate**) at home?

- Does everyone do this?
    - Are there people who do their business in other places?
- Why do people do that?
- Are there times that you have used the bush?
    - Why do people use the bush?

3. Can you show me where you **wash your hands**?

- Does everyone in your family do this?
- Why? Why not?

**DIFFERENCES**

Pick up your papers and think about the differences between school and home about water, sanitation and hygiene.

4. Think about water, sanitation in hygiene, what are the main differences between school and home?

- What situations do you prefer?
- Do you act differently at home?
    - Why do you act differently at home?
- Are your behaviors different?

5. What aspects of water, sanitation and hygiene would you like to change at home?

- Who would you talk to?
- Would you feel comfortable talking about it?
- Would you feel confident/prepared?
- What would you talk about?

Put away the pens!

Part II. Role-plays 30-40 minutes

SPEND MORE TIME ON ROLE PLAYS

*Objective: to understand what children want to talk to their parents/families about WASH*

6. What have you learned at school about water and being clean? Using the latrine, washing your hands?

- Who teaches you?
- What do your teachers talk about?
- How do they teach you?
    a. Do you do activities? If yes, what are they?

7. Have you ever talked or shown your parents/siblings about WASH before?

- What happened?
- Tell me in their own words what your parents/siblings said.
- Who did you talk to?
    - Why did you talk to this person?
    - If you spoke to a sibling were they older, younger?
- Why did you talk about it?
    - What motivated you to talk?
    - Did your teacher tell you to?
- What did you show?

**Have one student pretend to be the parent and one pretend to be the child.** Have the child teach the parent about WASH and the other students watch (do two sets of these if possible)

*Moderator: note anything interesting from the role plays and probe on these after.*

*Follow the play and try to establish enough for discussion, clap to show the end.*

- What did you see?
- What did the child say to the parent?
- Is this what would happen at your home?
- Would you be able to talk to your parent/sibling like that?
- Who would you talk to about water, sanitation, or keeping clean?

**Have one student pretend to be a student and one pretend to be a sibling** and have the other children watch. (do two sets of these if possible)

*Moderator: note anything interesting from the role plays and probe on these after.*
*Follow the play and try to establish enough for discussion, clap to show the end.*

- What did you see?
- What did the child say to the sibling?
- Would you be able to talk to your parent/sibling like that?
- Which of your siblings would you talk to?
- Why/why not?

# Appendix B. Focus Group Discussion Guide for Pupils (Phase 2)

## Consent Process

*Assent forms for focus group participants should have been completed during the phase 1. Below is a summary of the information in the assent form facilitators should use to make sure students understand the information.*
*When participants arrive for phase 2, ask them their name and then give them the same number nametag from the previous session.*

## Welcome

Thank you again for coming my name is *(moderator)* and this is (*notetaker)*
We are doing a study with some researchers who work with your school. The purpose of this study is to understand what you about how you and your family spoke about water and being clean. We also would like to understand how you talk with your parents and other children. This information will help us plan better ways of teaching about water and health.

We asked you to participate because we wanted to know your way of life. We want to understand what you know about water and staying clean.

Do you all have any questions before we begin?

## Recording

Do you remember the digital recording device (*hold up recorder*). Just to remind you, we are going to record the conversation in order to make sure we have the most accurate information possible, is this ok? We will record but after we will type up what you say and take out anything that is linked to you (your name, where you work etc.). We will share the recording only with members of the study team. Then we will delete the recording.

Are you ok to be recorded?

*TURN ON RECORDER*

Are you ok to be recorded?
*Say school name, date, time, and FGD with girls or boys phase 2*

## Ground Rules

Before the FGD starts, make sure that you go over the ground rules with the children (you might need to remind them throughout the FGD)
*READ THROUGH ALL OF THE GROUND RULES THEY ARE ALL IMPORTANT!!!*

- This is not a class or for a score feel free to speak as you like.
- You do not need to stand up or raise your hand to talk
- Respect each other's points of view
- Do not speak all at the same time
- We want you to speak to each other, not just to me. If your friend says something you think is interesting, ask him or her the question.
- We want you to speak to each other like friends
- We want you to be as truthful as you can. If you do not feel comfortable answering a question you don't have to but we do not want you to not tell the truth.

**Warm up: 5-10 minutes**

Can everyone tell me your name to remind us and tell us what you want to be when you grow up and why? I'll start, my name is _____ and I want to be a _____ because of _____. *Wait while everyone says his or her name and says what job they want to have when they grow up.*

**Talking about the at home activity**

*Objectives: to understand what happened when the children told their parents probe on: feelings, parental reactions, and what motivated the children.*

Do you all remember the at home activity we had you do? Did everyone get a chance to do it? It's ok if you didn't. We would like for you all to be as honest as you can during this time. If you were not able to speak to your parents or friends about the at home activity tell us! We are not here to judge you. We want to learn from you! For example: if you were too scared to talk to your parents about it. Tell us!

We would like you to now draw a picture of the person/people who you spoke to and tell us about them.
*Wait about 5 minutes for them to finish drawing.*

Can you all hold up your drawings? Wow! Those are great!! *Encourage the children*

Can one of you explain to me who is in the drawing?

- Who drew someone different?

*Allow a few pupils to talk about who is in their picture*
Who did you speak to?

- Probe on family, friends, siblings?
- Why did you choose speak to _____?

What did you talk about?
*Probe for specific activities and what they chose to talk to their parents about. If they left out part of the assignment, find out why.*

- We asked you to do 4 different things: why you use a latrine (not to defecate in the open), about using a tippy tap and why, about when to wash your hands and about how to clean your water

- Why did you only speak about certain activities?
- Did you speak about different parts of the activity with different people?
  - Who did you speak to about what?
  - Why did you do that?

What were your parents or family members doing when you told them?

- When did you speak to them?
- What time of day was it?

How did you tell them?

- Were you able to show them how to do it?
- Did they listen to you?

Were your parents or family members able to do what you taught them?

- What did they do?
- Did you help them?

What made it difficult for you to do the activity with your parents?

- Why? Why not?
- Did your family give any reasons for why they could not do the activity?
  - *Probe on barriers*: cost and time?

## Role Plays

*Have one student pretend to be the guardian and one is the pupil and ask them to show how their experiences went. The rest of the group should watch. MODERATOR: note what is interesting*
*Ex: if children bring up feelings of responsibility ask in the follow up: Did other people talk about responsibility to the parents?*

*Ask the group:*

What happened?

- How did the parent act?
- How did the pupil act?

How did the child approach the parent?

- Why did they do that?

Was this what happened to everyone else in the group?

- How did everyone else's parents react?

How did you feel showing what to do to your parents?

- *Probe on*: happy, worried, and proud?

What has prepared you to talk to your family about this?

- Can you tell me about this?
- Why did you feel this way?

What would make it easier to speak to your family members about WASH?

- How did you feel about using pieces of paper to talk to your parents?

How did it feel to talk about WASH?

- Why did you feel this way?
- How confident did you feel (Very? A little?)
- Was it a challenge to talk to your family or parents about WASH*?*
    - Why? Why not?
- Did anyone have fun speaking to their families or friends?
    - Why? Why not?

Would you like to teach them again?

- What would you do differently if you were to teach your family again?
- Why would you do it like that?

If you have spoken to your families before about WASH what motivated you to speak about it?

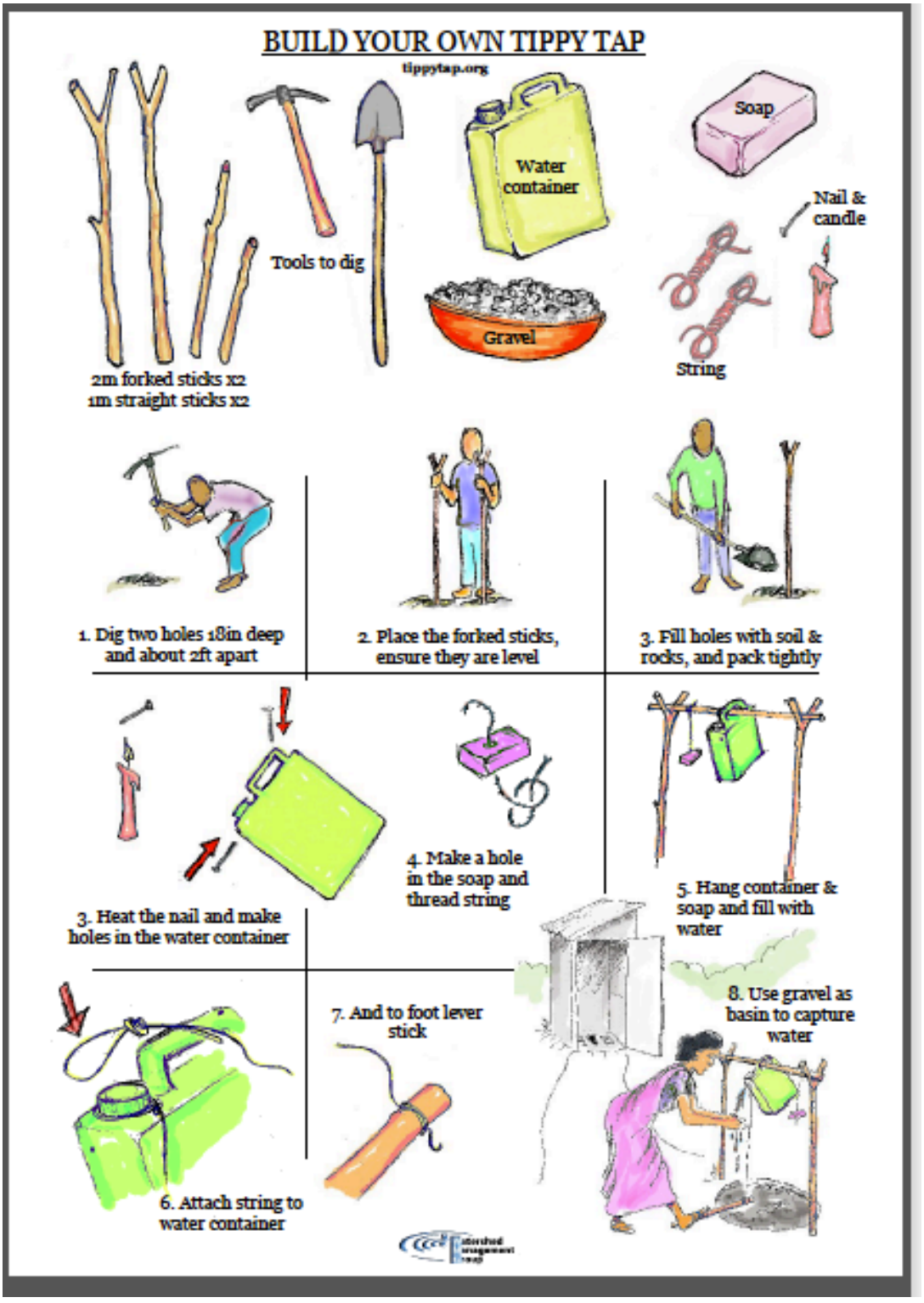
**Closing**

Do you have any recommendations on what the school can do to help increase communication about WASH between parents and students? Are there any activities you would like to see done in your community about WASH?

Thank you very much for speaking with us today. The information you have given us has been very helpful and will be utilized to possibly inform what you learn at school.

**Don't turn the recorder off until everyone leaves the room**

# Appendix C. At Home Assignments



# Appendix D. Key Informant Interview Guide for Teachers

**Welcome:**
Thank you for agreeing to share your story my name is *(interviewer)*
*Review the purpose of the study:* We are doing a study with Emory University and SPLASH. The purpose of this study is to understand how we can improve the SPLASH behavior change approach.
*What will be done with this information:* the information from the study will be used to inform current water, sanitation and hygiene education intervention in this school.

*Why you asked them to participate:* We asked you to participate because we wanted to know your opinions and thoughts regarding the children in this school and the existing WASH curriculum.

Do you have any questions before we begin?

**Warm up:**
How did you become a teacher?

Why did you become a teacher?

What do you like about teaching?

**Part I. WASH curriculum:**
Describe the existing curriculum for me.

How do you teach the pupils?

Where do you teach the pupils about WASH?

What kind of activities do children do?

Do the children participate? Why do you think they do/do not?

What do you think of the existing curriculum?
    Probe: Is it effective?
What do you like about the curriculum?

What would you change about the curriculum?

Do you feel the curriculum is culturally competent? Why? Why not?

**Part II. Children as change agents:**
What do you think about children teaching their parents WASH skills?
    Probe: would this be possible in your community?

How could your pupils influence your community?

What could the teachers do at the school to help children speak to their parents about WASH?

Why do you think it would be important for children to communicate what they learn in school to their parents?

**Closing**

Is there anything else you would like to add today regarding the WASH curriculum?

Thank you very much for speaking with us today. The information you have given us has been very helpful and will be utilized to possibly inform the existing curriculum.

# Appendix E. Focus Group Discussion with Parents

## Introduction

## Welcome

Thank you so much for coming! We understand that you are very busy and we really appreciate you taking time to speak with us. My name is Elizabeth this is Rebecca and over there is our research supervisor Sara (and introduce anyone else in the room).

We are doing a study with Emory University and SPLASH. The purpose of this study is to understand what you know about water, sanitation and hygiene. We also would like to understand how you communicate with your children.
The information from the study will be used to inform the current water, sanitation and hygiene education intervention at the school where your children attend.

We asked you to participate because we wanted to know your way of life. We want to understand how you communicate with your children and how people in your area deal with water, sanitation and hygiene.

We are going to take you one by one and explain to you the study individually.

## Consent Process

*Consent forms and information sheets for focus group participant consents should be completed <u>before</u> any focus groups start.*
*Above is a summary of the information in the consent form that focus group organizers and facilitators should use to make sure participants understand the information in the consent form. After participants consent orally give them a number nametag and note the number on the sheet next to the demographic questionnaire.*

## Recording

This is a digital recording device (*hold up recorder*). We are going to record the conversation in order to make sure we have the most accurate information possible, is this ok? We will record but after we will type up what you say and take out anything that is linked to you (your name, where you work etc.). We will share the recording only with members of the study team. Then we will delete the recording.

Are you ok to be recorded?
*TURN ON RECORDER*
Are you ok to be recorded?

*Say your name, the name of the school, date, time and FGD with parents*

## Ground Rules

*Before the FGD starts, make sure that you go over the ground rules with the parents (you might need to remind them throughout the FGD)*

Before the focus group discussion starts, we have some guidelines we would like to discuss before we start.

- Please feel free to speak as you like
- Respect each other's points of view
- There are no right or wrong answers
- This conversation is confidential so do not speak about what is said outside the group.
- Only one person should speak at a time
- We want you to speak to each other, not just to me. If your friend says something you think is interesting, ask him or her a question. Feel free.
- We want you to speak to each other like friends
- There is no need to raise your hand or stand when speaking

**Warm up**

*To start warm up the group by asking them to introduce themselves and tell us how many children they have and what their favorite meal to make for their family is and why. The moderator should start.*

Thank you so much for coming today, we are going to start the focus group by having everyone go around the room and introduce themselves and say how many children you have (boys and girls) and what is your favorite meal to make for your family and why. I will start: My name is _____, I don't have any children but I do have ____ brothers and sisters. My favorite meal to make for my family is _____ because of _____.

**Communication Behaviors**

We would like to talk a little bit about how you communicate with your children about school and health. We will talk about water, sanitation and hygiene later.

*Make sure the parents do not talk only about WASH. We want to know about all types of information (math, science, school events etc.).*

How do you know what your children are learning in school?

- When do you speak to them (in the morning, evening)?
- What information do your children tell you?
    - Does everyone do this?
- How do your children tell you about it?
- What types of information do you want to receive from children in school?
- Do you help your children do their homework? (How, why?)
- Do you trust what your child learns at school?
    - Why? Why not?

How does the school communicate with you?

- *Probe on:* Letters? Through the children?

Where do you typically get your information about health or water, sanitation and hygiene?

- What other means of communication: TV, radio, billboard, health worker, doctor?
- What have you been told?
- Who do you trust about health information and why?

- *If they say SPLASH probe*: who else?
- Who do you go to in order to confirm if it is true? (Second opinion)

Who influences your community the most?

- The chief? Headman?

**Homework**

Now we are going to talk a little bit about the homework we gave the children to do with you. We want to know the truth about your experiences in order to make the SPLASH program better. Please be as honest as you can. We are not here to judge you. We want to learn from you.

Please tell us about how your child approached you.

- What did he or she say or do?
- Did he or she **show** you what to do?
- What did he or she explain?
- What were you doing at the time?
- When did you speak to them?

How did you **feel** about getting information from the children?

- What was your reaction (surprised, happy/proud, angry, confused, and embarrassed)?
  - *Probe* more on emotion!
  - Ask **WHY** they felt that emotion.
- Did you tell your children how you felt about doing the activity?
  - What did you say?
- Did you ask them any questions?
- How would you feel if it was integrated into regular homework? Done again?

What have you changed since your children spoke to you?

- Why? /Why not?
- Where did do it?
- How did you do it?
- Will you do anything different in the future?
  - How would you do it?

What did you think about the papers?

- What did they teach?
  - Did you find them easy to understand?

Have your children already spoken to you about WASH before?

- How did that feel?
- Did you refuse/accept the information?

How do you feel about your children teaching you about health?

- Can your children teach you new things?

Do you think it is appropriate for children to discuss these things with you?

- Why? Or why not?

How would you feel if activities like this one were incorporated into their everyday curriculum?

Other than what you have already said earlier what would you like to change about your current water, sanitation, and hygiene situation?

- What are some things that your neighbors do differently than your house?
- What could someone tell you or show you to change your mind about what you currently do?
- Who would you like to talk to learn more?

What makes it difficult for you to make changes to your water, sanitation and hygiene situation?

  - *Probe on:* cost, time
- Who makes the decisions about water, sanitation and hygiene in your household?
- How do you feel about making changes to your current WASH situation?
- How do you think you could take control of the situation?
  - *Probe on:* feeling empowered

How do you think that we can involve **men** more in school?

- What would make it easier for you to become more involved
- What could SPLASH do to help you?

## Closing

Do you have any recommendations about school WASH programming? What about sharing messages from school to parents? Is there anything else you would like to add?
Thank you very much for speaking with us today. We understand your schedules are very busy and we greatly appreciate you taking the time to come.

The information you have given us has been very helpful and will be utilized to possibly inform what your children learn at school. You all are now free to leave as you wish.

***Do not turn the recorder off until they leave the room.***

# Appendix F. Demographic Collection Tools

**Emory University – SPLASH Zambia Diffusion Study Pupil Questionnaire**
**School Name:**
**School Number:**

| | | |
|---|---|---|
| ***P000 Before beginning, read assent script. Does pupil assent?*** | 0. ***→END SURVEY*** | 1. Yes |

***ID* Write ID Number Here:** ☐

| | | | |
|---|---|---|---|
| **P101** | *Is the pupil a boy or girl?* | 0. Boy ***minyamata*** | 1. Girl ***m'sungwana*** |
| *Now I will ask you a few short questions* | | | |
| **P102** | What is your age? | \|_____\| (*write 99 for "don't know*) | |
| **P103** | What grade are you currently in? | \|_____\| | |
| **P104** | Who do you live with in your household? (CHECK ALL THAT APPLY) | Mother | ☐ ☐ |
| | | Father | ☐ ☐ |
| | | Sister | ☐ ☐ |
| | | Brother | ☐ ☐ |
| | | Other Relatives | ☐ ☐ |
| | | Other non-relatives | ☐ ☐ |
| **P105** | How many people live with you in your household? | \|_____\| | |
| **P106** | Are you in the WASH club? | 0. No | 1. Yes |

**Emory University – SPLASH Zambia Diffusion Study Parent Questionnaire**

| | | | |
|---|---|---|---|
| ***P000*** | ***Before beginning, read consent script. Does participant consent?*** | 0. No ***→END SURVEY*** | 1. Yes |

***ID*** **Write ID number here** ☐

| | | |
|---|---|---|
| *Now I will ask you a few short questions.* | | |
| **P102** | What is your age? | ☐ (*write 99 for "don't know*) |
| **P103** | How many of your children go to school in the SPLASH area? | ☐ |
| **P104** | What is the age and gender of your children in that school? | List the Ages and genders of the children in the SPLASH area<br>Age \| Gender<br>☐ ☐<br>☐ ☐<br>☐ ☐<br>☐ ☐<br>☐ ☐ |
| **P105** | Are you a member of the PTA (or equivalent)? | YES NO (*Circle one*) |
| **P106** | Who earns money for the household? | |
| **P107** | What is their job? | |
| **P108** | How many people live with you in your household? | ☐ |

# Appendix G. IRB Approvals



EMORY UNIVERSITY | Institutional Review Board

TO: Matthew Freeman, PhD
Principal Investigator
Environmental & Occupational Health

DATE: May 28, 2013

RE: **Expedited Approval**
IRB00066009
Exploring the potential of children as change agents in the context of WASH in Zambia

Thank you for submitting a new application for this protocol. This research is eligible for expedited review under 45 CFR.46.110 and/or 21 CFR 56.110 because it poses minimal risk and fits the regulatory category F(7) as set forth in the Federal Register. The Emory IRB reviewed it by expedited process on 5/23/2013 and granted approval effective from **5/23/2013** through **5/22/2014**. Thereafter, continuation of human subjects research activities requires the submission of a renewal application, which must be reviewed and approved by the IRB prior to the expiration date noted above. Please note carefully the following items with respect to this approval:

- Parental consent for minor subjects has been waived for this study; consent in loco parentis will be obtained from school Principals
- A waiver of documentation of consent and assent has been granted for this study
- Approved under 45 CFR 46.404 as research that poses no more than minimal risk to minor subjects
- The following documents are approved for use:
  - Study Protocol, version date 5/1/2013
  - Focus Group Guide for Pupils (phase I), version date 5/2/2013
  - Focus Group Guide for Pupils (phase II), version date 5/16/2013
  - Focus Group Guide for Parents, version date 5/16/2013
  - Focus Group Guide for Teachers, version date 5/16/2013
  - Parent Questionnaire, version date 4/14/2013
  - Pupil Questionnaire, version date 5/16/2013
  - Consent in *Loco Parentis*, version date 5/16/2013
  - Assent script, version date 5/16/2013
  - Consent script for Parents as subjects, version date 5/16/2013

Any reportable events (e.g., unanticipated problems involving risk to subjects or others, noncompliance, breaches of confidentiality, HIPAA violations, protocol deviations) must be reported to the IRB according to our Policies & Procedures at www.irb.emory.edu, immediately, promptly, or periodically. Be sure to check the reporting guidance and contact us if you have

questions. Terms and conditions of sponsors, if any, also apply to reporting.

Before implementing any change to this protocol (including but not limited to sample size, informed consent, and study design), you must submit an amendment request and secure IRB approval.

In future correspondence about this matter, please refer to the IRB file ID, name of the Principal Investigator, and study title. Thank you.

Sam Roberts, BA CIP
Senior Research Protocol Analyst
*This letter has been digitally signed*

| | | | |
|---|---|---|---|
| CC: | Bresee | Sara | Public Health |
| | Trinies | Victoria | Envir & occup Health |
| | Sales | Jessica | Behavioral Science |

Emory University
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ERES CONVERGE

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I.R.B. No. 00005948
F.W.A. No. 00011697

3rd July, 2013

**Ref. No. 2013-June-006**

The Co- Principal Investigator
Dr. Matthew Freeman
SPLASH
Plot No. B/34 28A Cnr. Joseph Mwilwa & Great East Rd
**LUSAKA.**

Dear Dr. Freeman,

**RE: WASH Message diffusion study in Rural Eastern Zambia.**

Reference is made to your corrections dated 26th June, 2013. Noting that you addressed all concerns the IRB resolved to approve this study and your participation as principal investigator for a period of one year.

| Review Type | Fast track | Approval No. **2013-June-006** |
|---|---|---|
| Approval and Expiry Date | Approval Date: 3rd July, 2013 | Expiry Date: 2nd July, 2014 |
| Protocol Version and Date | 18.06.2013 | 2nd July, 2014 |
| Information Sheet, Consent Forms and Dates | • English. | 2nd July, 2014 |
| Consent form ID and Date | Version-Nil | 2nd July, 2014 |
| Recruitment Materials | Nil | 2nd July, 2014 |
| Other Study Documents | Parent and Pupil FGD Guides, Parent and Pupil Questionnaires | 2nd July, 2014 |
| Number of participants approved for study | | 2nd July, 2014 |

Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

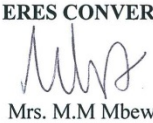
**Conditions of Approval**

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to the IRB within 5 days.
- All protocol modifications must be IRB approved prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to the IRB within 5 working days.
- All recruitment materials must be approved by the IRB prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. Documents must be received by the IRB at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Any documents received less than 30 days before expiry will be labelled "late submissions" and will incur a penalty.
- Every 6 (six) months a progress report form supplied by ERES IRB must be filled in and submitted to us.
- ERES Converge IRB does not "stamp" approval letters, consent forms or study documents unless requested for in writing. This is because the approval letter clearly indicates the documents approved by the IRB as well as other elements and conditions of approval.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of ERES Converge IRB, we would like to wish you all the success as you carry out your study.

Yours faithfully,
**ERES CONVERGE IRB**



Mrs. M.M Mbewe
RNM, DNE, BSc., M.Ed.
**ACTING CHAIRPERSON**

fhi360
THE SCIENCE OF IMPROVING LIVES

## Protection of Human Subject Committee

### INITIAL APPROVAL NOTICE

| | |
|---|---|
| DATE: | June 4, 2013 |
| TO: | Tommy/Matthew Mateo/Freeman, MA/PhD |
| PROJECT TITLE: | [464367-1] Formative Research: WASH message diffusion in rural Zambia |
| SUBMISSION TYPE: | New Project |
| ACTION: | Approved |
| REVIEW TYPE: | Expedited Review |
| APPROVAL DATE: | June 3, 2013 |
| EXPIRATION DATE: | June 2, 2014 |
| RISK LEVEL: | Minimal Risk |
| REVIEW CATEGORY: | Expedited Research Category (6 and 7) |

---

Thank you for submitting Formative Research: WASH message diffusion in rural Zambia for review by the Protection of Human Subjects Committee (PHSC). I am pleased to inform you the above mentioned study has been approved by the PHSC. This approval is effective from June 3, 2013 until June 2, 2014 and is based on an appropriate risk/benefit ratio and a project design in which the risks have been minimized.

All research activities must be conducted in accordance with this approved submission. It is your responsibility to fulfill the following requirements of approval:

1. All key personnel listed in the Proposal Summary must be kept informed of the status of the project.
2. Changes, amendments, and addenda to the protocol, informed consent, or other study materials must be submitted to the PHSC for re-review and approval **prior** to implementation. Please use the appropriate revision forms for this procedure.
3. Any unanticipated problems, adverse events, protocol violations, social harm, or any new information becoming available which could change the risk/benefit ratio must be reported to the PHSC according to FHI 360 policy. The researcher should also follow all funding and sponsor reporting requirements.
4. Please remember informed consent is a process beginning with a description of the project and confirmation that the participant understands and agrees to their role in this research. Only the approved informed consent process/forms are to be used in the enrollment of participants. Documentation of consent, such as forms signed by subjects and/or witnesses, should be retained in the researcher's file and be readily available for review by PHSC.
5. Federal regulations require review of an approved study not less than once per 12-month period. **To comply with federal regulations a continuing review application must be submitted to the PHSC for this study to continue beyond June 2, 2014**. All necessary materials for continuing review must be received

with sufficient time for review and issuing continued approval before the expiration date. Failure to initiate a continuing review application in a timely fashion may result in discontinuation of study activities until approval can be renewed. Performing study activities, including data analysis, beyond the expiration date results in noncompliance of federal regulations.

Sara Tenorio, Director, Office of International Research Ethics
Protection of Human Subjects Committee Member

FHI 360 HEADQUARTERS 224 E NC Hwy 54 | Durham, NC 27713 USA
T 1.919.544.7040 | F 1.919.544.7261 | www.fhi360.org

# Appendix H. Informed consent forms

## Consent in Loco Parentis

**SPLASH / FHI 360 / Emory University children as change agents study**

**School Name: _____**

**Name of study staff obtaining consent: _____**

We kindly request your permission to allow the children at this school to participate in a study to better understand how the current curriculum is working and if children can be agents of change in their community. This research is being carried out by Emory University in the United States, in partnership with FHI 360 and the SPLASH program, which is funded by USAID.

We request permission to visit this school two times over the next three weeks. Our visit days will be *(enter visit days)* _____. We wish to recruit up to 20 children at this school to participate from ages 8 to 12. All children ages 8 to 12 will be eligible to participate in this study. To identify participants, we will purposively sample pupils with aid of the teacher to choose children who have similar demographics to the community.

We will request a verbal assent from each pupil. An explanation of the study will be read to each child privately before starting the focus group. A child will be included in the study only if he or she gives permission. The participation of each child must be completely voluntary. A child may end participation at any time without a problem. All the information that is provided by the will be kept confidential and will not be shared with teachers or administrators.

We are requesting to conduct the following activities with pupils in the study:

1) Focus group discussions where we will ask questions regarding water, sanitation and hygiene (WASH). We will also ask questions about children's feelings, attitudes and beliefs about their ability to communicate WASH.
2) Participatory learning activities where we will ask children to talk about WASH by using stories, drawings and games. These activities are used to engage children to illicit responses more easily. These will be utilized during the focus group sessions to supplement the questions and to aid in avoiding boredom for the children. The

children will also be given homework about WASH to take to their parents. During the second visit, we will discuss this experience further.

3) A short demographic interview will be asked before each focus group discussion. Questions will address children's age, gender and socioeconomic status. This questionnaire will be coded with a number and will not be linked to the child's name in any way.

The only risks to children who participate other than lost class time during the focus group discussions. There is also a risk that students from the focus groups will also talk about what was discussed outside the focus group. We will try to minimize this lost time by conducting discussions during break times when possible.

This information will be kept completely confidential. All recordings will be destroyed and identifying information will be taken out of each transcription. There will be no way to link participants with the information shared in these discussions.

The information we gather from this study will not directly benefit the school in any way, but your students' participation will contribute to global understanding of the importance of improved school water, sanitation, and hygiene programs. We are asking for your permission on behalf of parents due to the logistical challenges of contacting each parent and due to your position as caretaker of the children in this school.

**Contact:** If you have questions or concerns about the research, the rights of the pupils, or about your rights as a participant, you may contact:

Tommy Mateo M&E Specialist

B/34 284A Corner Joseph Mwilwa & Great East Road Lusaka

tmateo@splashzambia.org

Tel +260 211 223448/9, 226681/87

**Institutional Review Board:** ERES Converge IRB

Mrs. Mercy M. Mbewe

33 Joseph Mwilwa Road

Rhodes Park, Lusaka

eresconverge@yahoo.co.uk

Tel +260 955 155 633

+260 955 155 634

***On behalf of their parents and as caretaker of the children in this school, I hereby grant permission for pupils at my school to participate in the following activities:***

*(Please mark each activity that you consent to with your initials. Participation in this study requires consent to all activities.)*

1. |____| Focus group discussion 2. |____| Participatory Learning activities 3. |____| Individual demographic interviews

**Permission granted by:**

*Loco parentis*

Print Name: _____ Signature: _____ Title: _____ Date: _____

# Student Information Sheet

**SPLASH / FHI 360 / Emory University children as change agents study**

**Introduction:** We work with SPLASH, which is a project that is improving water and sanitation in schools. We would like to ask you to participate in a group discussion today with other children. We will be asking you to talk about a few different topics. We want to know your experience with water, sanitation and hygiene. We want to learn from you and your ideas and we will use this information to help make your school better.

**Voluntary participation:** You will decide if you want to join in. That means it is your choice whether you participate or not. There is no problem at all if you say "no" now or any later time. Your teacher will not make you participate either. If you do not like a question, you do not have to answer it and you can stop at any time. We are going to take notes and record what you say to not miss anything. I'm going to put the recorder here. If you do not want the recorder on tell me and I will turn it off.

**Procedures & confidentiality:** We will visit your school two times during the next three weeks. During both visits we want to talk to you in a group of other children. Both times we talk, it will last about an hour to an hour and a half. If you want to join in this research, we will ask you some questions about a few different things. We will ask you some questions about water and we will ask you about your family. We will also ask you to play some games, tell us some stories and explain to us your feelings. We will also give you a homework assignment to take to your parents and we will want you to tell us about that afterwards.

Everything you say, write or draw for us will be private. It will not affect your mark in school. Everything you will say will be confidential. We will not tell your teachers or your friends what you say. We will only give the information found to help the research but no one will know your name. You do not have to answer questions that you don't wish to. Also, you can decide to stop participation any time you want. There will be no way to link what you say to who you are. All recordings will be destroyed once the discussions have been written down. All information you say that can identify you, will be taken out of the written down discussions.

**Risks and benefits:** There are no direct benefits to you or your school. It will only help us understand the situation of schoolchildren in Zambia. This may help us improve school conditions in Zambia in the future. There is no great danger to participate. You may miss some class time while you speak with us. We will get permission from your teacher for this time.

**Contact:** If you have any questions, you may contact the people below.

**FHI/SPLASH:** Tommy Mateo M & E Specialist

B/34 284A Corner Joseph Mwilwa & Great East Road Lusaka

tmateo@splashzambia.org

Tel +260 211 223448/9, 226681/87

**Institutional Review Board:** ERES Converge IRB

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33 Joseph Mwilwa Road

Rhodes Park, Lusaka

eresconverge@yahoo.co.uk

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+260 955 155 634

**Do you wish to participate in this study?**

# Parent Information Sheet

**Introduction:** We work with SPLASH, which is a project that is improving water and sanitation in schools. We would like to ask you to participate in a group discussion today with other guardians of pupils at the school. We will be asking you to talk about a few different topics. We want to know your experience with water, sanitation and hygiene and your attitudes about children. We want to learn from you and your ideas and we will use this information to help make your school better.

**Voluntary participation:** You will decide if you want to join in. That means it is your choice whether you participate or not. There is no problem at all if you say "no" now or any later time. If you do not like a question, you do not have to answer it and you can stop at any time. We are going to take notes and record what you say to not miss anything. We are going to put the recorder where you can see it. If you do not want the recorder on tell me and the enumerator will turn it off.

**Procedures & confidentiality:** When we talk, it will last about an hour to an hour and a half. We will ask you some questions about a few different things. We will ask you some questions about water and we will ask you about how you feel about children bringing you information. We also may ask you to play some games, tell us some stories and explain to us your feelings.

Everything you say for us will be private. Everything you say will be confidential. We will not repeat what you say to anyone in the community. We will only give the information found to help the research but no one will know your name. You do not have to answer questions that you don't wish to. Also, you can decide to stop participation any time you want.

**Risks and benefits:** There are no direct benefits to you. It will only help us understand WASH and schoolchildren in Zambia. This may help us improve school conditions in Zambia in the future. There is no great danger to participate.

**Contact:** If you have any questions, you may contact the people below.

**SPLASH :** Tommy Mateo M & E Specialist

B/34 284A Corner Joseph Mwilwa & Great East Road Lusaka

tmateo@splashzambia.org Tel +260 211 223448/9, 226681/87

**Institutional Review Board:** ERES Converge IRB

Mrs. Mercy M. Mbewe

33 Joseph Mwilwa Road

Rhodes Park, Lusaka eresconverge@yahoo.co.uk Tel +260 955 155 633/+260 955 155 634

# Parent Consent

**SPLASH / FHI 360 / Emory University children as change agents study**

I _____ have read the contents of the Information sheet and understand the role of participating in this study. I have read the risks/benefits of participation. I also understand that my participation is voluntarily and that I may decide not to answer some question/s or pullout of the study at any point I may wish to.

I understand that should I have any questions/concerns regarding the study I may contact the Message Diffusion Study in Rural Eastern Zambia PI`s/ REC Chairperson`s addresses below:

SPLASH /FHI360: Tommy Mateo M & E Specialist

B/34 284A Corner Joseph Mwilwa & Great East Road Lusaka

jlupele@splashzambia.org Tel +260 211 223448/9, 226681/87

Institutional Review Board: ERES Converge IRB

Dr. Munalula-, Chairperson

33 Joseph Mwilwa Road

Rhodes Park, Lusaka

eresconverge@yahoo.co.uk Tel +260 955 155 633/+260 955 155 634

**Parent Consent** [ ] ***tick as appropriate***

**Thumb print:**

**Date**: ____/_____/_____
DD/MM/YYYY

# Teacher Information Sheet

**Introduction:** Thank you for being a part of our study. This qualitative study is a part of SPLASH, which is a project that is improving water and sanitation in schools. This interview will cover a few different topics. We want to know your experience about teaching in this school. We want to learn from you and your ideas and we will use this information to help make your school better.

**Voluntary participation:** You will decide if you want to join in. That means it is your choice whether you participate or not. There is no problem at all if you say "no" now or any later time. If you do not like a question, you do not have to answer it and you can stop at any time. We are going to take notes and record what you say to not miss anything. You can tell us to stop recording at any time.

**Procedures & confidentiality:** When we talk, it will last about an hour or less. We will ask you some questions about a few different things. We will ask you some questions about teaching.

Everything you say for us will be private. Everything you say will be confidential. We will not repeat what you say to anyone in the community. We will only give the information found to help the research but no one will know your name. You do not have to answer questions that you don't wish to. Also, you can decide to stop participation any time you want. All recordings will be destroyed once the recordings have been written down and all identifying information has been taken out.

**Risks and benefits:** If you join us, there are no direct benefits to you. It will only help us understand WASH and schoolchildren in Zambia. This may help us improve school conditions in Zambia in the future. There is no great danger to participate.

**Contact:** If you have any questions, you may contact the people below.

**SPLASH** : Tommy Mateo M & E Specialist

B/34 284A Corner Joseph Mwilwa & Great East Road Lusaka

tmateo@splashzambia.org

Tel +260 211 223448/9, 226681/87

**Institutional Review Board:** ERES Converge IRB

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33 Joseph Mwilwa Road

Rhodes Park, Lusaka

eresconverge@yahoo.co.uk Tel +260 955 155 633/+260 955 155 634

# Teacher Consent Form

**SPLASH / FHI 360 / Emory University children as change agents study**

I _____ have read the contents of the Information sheet and understand the role of participating in this study. I have read the risks/benefits of participation. I also understand that my participation is voluntarily and that I may decide not to answer some question/s or pullout of the study at any point I may wish to.

I understand that should I have any questions/concerns regarding the study I may contact the Message Diffusion Study in Rural Eastern Zambia PI`s/ REC Chairperson`s addresses below:

**Emory /FHI360 :** Tommy Mateo M & E Specialist

B/34 284A Corner Joseph Mwilwa & Great East Road Lusaka

mcfreem@emory.edu

Tel +260 211 223448/9, 226681/87

**Institutional Review Board:** ERES Converge IRB

Dr. Munalula-, Chairperson

33 Joseph Mwilwa Road

Rhodes Park, Lusaka

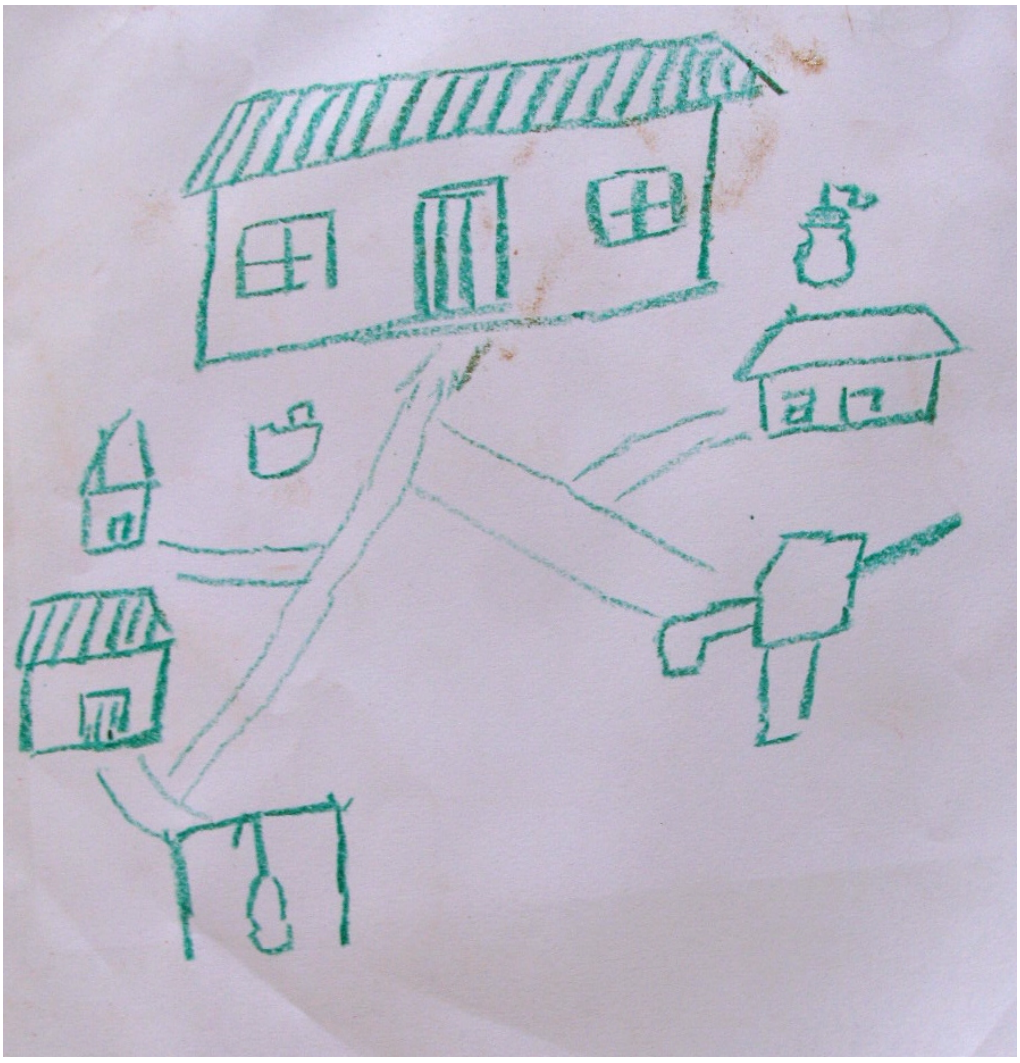
eresconverge@yahoo.co.uk

Tel +260 955 155 633/+260 955 155 634

Signature: _____Date: ____/_____/_____ DD/MM/YYYY

# Appendix I. Examples of Drawings from Pupils during FGD Phase 1

Pupil's drawing of a home WASH area



Pupil's drawing of school WASH area