



Universiteit Utrecht



# The M-Word:

## Assessing the appropriateness of the menstrual cup as a tool for the menstrual hygiene management of girls in Siaya County, Kenya

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## Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
CCG	Cups or Cash for Girls
CDC	Center for Disease Control
CT	Cash Transfer
FAQ	Frequently Asked Questions
FGD	Focus Group Discussion
HIV	Human Immunodeficiency Virus
KEMRI	Kenya Medical Research Institute
KES	Kenyan Shilling
LSTM	Liverpool School of Tropical Medicine
LMIC	Low and Middle Income Country
MHM	Menstrual Hygiene Management
MoE	Ministry of Education (Kenya)
MoH	Ministry of Health (Kenya)
NGO	Non-Governmental Organization
SRHR	Sexual Reproductive Health and Rights
STI	Sexually Transmitted Infection
SWAP	Safe Water and AIDS Project
USD	United States Dollar
WASH	Water and Sanitation Hygiene

## Abstract

In many developing countries girls and women are unable to access and/or afford adequate materials to manage their menstrual cycles. For many young girls this results in a decrease in school attendance, the utilization of unhygienic practices, and in some cases in the engagement in transactional sex with consequences such as pregnancy and STIs. In an effort to provide relief, the United States Center for Disease Control, the Liverpool School of Tropical Medicine, the Kenya Medical Research Institute and the Safe Water and AIDS Project joined forces to create the Cups or Cash for Girls Trial in Siaya County, Kenya. This trial investigated whether menstrual cups, cash, or the combination of the two can succeed in enhancing school attendance and reducing the prevalence of transactional sex. The current research paper situates itself within this trial, and aims to answer the question of whether a menstrual cup can be considered an appropriate technology for the menstrual hygiene management of girls in Siaya county. 30 interviews and participant observation were conducted throughout a 13 week research period. This thesis' conclusion is twofold. Firstly, menstrual cups provide girls with a comfortable, reliable and easy tool to manage their menstruation. Though in this respect the trial is successful, this paper argues that the long term ramifications of this trial are negative. This is because the trial lasts 3 years after which there are no further chances of obtaining cups for free through the trial. Should cups be lost, girls have children, or the expiration date of the cup pass, the majority of girls will resort back to their previous practices of menstrual hygiene. Through the trial, girls have been made aware that their practices were unhygienic, and that there is a more comfortable alternative. Resorting back to their previous practice after the cup will lead to increasingly negative experiences during menstruation. The study thus concludes that those implementing development related interventions should be mindful, reflexive and critical of long term consequences, though unintended, beyond the duration of the intervention.

# 1 Introduction

## 1.1 Problem Statement

Within the field of International Development Studies, the provision of basic needs such as clean water and access to adequate sanitation has been a commonly recurring theme. This is because the consequences of poor quality water and sanitation hygiene are far reaching (WASH), with diarrheal disease being one of the leading causes of morbidity and mortality in children younger than five in developing countries (Fewtrell et al., 2005). Furthermore, it is thought that globally, WASH related issues account for 5.7% of the global burden of disease, and is responsible for 4% of deaths worldwide (Prüss et al., 2002). Disability and death as a consequence of diarrhea and parasitic infections are deemed to be treatable and, most importantly, preventable. Thus, improving WASH in developing countries is a matter that concerns academia and policy makers from all disciplines. It is thought that, though expensive, WASH related interventions could prove to be the most cost efficient way to improve health, save lives and ultimately improve the overall well being of people in developing nations (Montgomery & Elimelech, 2007).

WASH projects encompass and address many related issues, one of them being Menstrual Hygiene Management (MHM).

## 1.2 Menstrual Hygiene Management

Issues within MHM are targeted predominantly at women and young girls, who as a result of poor sanitary resources, a lack of WASH facilities, cultural taboos and subsequent shame miss school, sometimes become ostracized from community activities, such as attending church, and are sometimes forced to sleep outside the family home (Sumpter et al., 2013). Aside from psychosocial consequences, biomedical consequences of poor sanitation at the time of menstruation include bacterial infections that cause great discomfort, shame and in extreme cases lead to infertility. As is the case with WASH related issues in general, these problems are deemed relatively easily preventable through a combination of education and infrastructural improvements. Yet, a lack of resources at schools, both in terms of staff willingness and knowledge as well as WASH facilities, inhibits speedy progress in MHM (Sumpter et al., 2013; Sommer, 2010; Mason et al., 2015).

There is much criticism on development and public health practitioners for their reluctance to work with and focus on MHM, and their focus on more 'popular' issues such as sexual and reproductive health and rights (SRHR) and the provision of clean water (Sommer & Sahin, 2013). Additionally, MHM academics

and practitioners are frustrated by the donor-driven aspect of development projects and interventions, as donors are often averse to investing in MHM projects. This reflects the larger overarching problem of an apparent censorship resulting from discomfort when it comes to discussing menstruation, despite it being a natural occurrence in a woman's life. Because of this, it is important to address the issue of MHM within development studies in order to improve the wellbeing of girls and women in developing countries, and ensure their equal participation in their personal, as well as their country's, development with the ultimate goal of empowering them. By addressing MHM and determining whether menstrual cups are an appropriate way of managing menstrual cycles of girls and women in developing countries, this research aims to contribute to existing knowledge on MHM and, by linking it to international development studies, devise new ways to ensure that this participation and empowerment are realized.

### **1.3 Cups or Cash for Girls Trial**

The Safe Water and AIDS Project (SWAP) in Kisumu, Kenya is involved in a cluster randomized control trial in collaboration with Liverpool School of Tropical Medicine (LSTM), the Kenya Medical Research Institute (KEMRI), U.S. Center for Disease Control (CDC), Kenyan Ministries of Health and Education that addresses sexual and reproductive harm and school dropout in adolescent school girls. The issue addressed by this intervention is that girls engage in transactional intercourse in order to purchase items such as soap and sanitary products, resulting in high prevalence of sexually transmitted infections (STIs), teen pregnancy and school dropout (Cups or Cash Protocol, 2016). The ramifications of this issue are widespread, yet sustainable and appropriate interventions are lacking. A baseline study demonstrated that improved MHM yielded higher rates of school attendance, which in turn lead to improved health outcomes in relation to bacterial infections, STIs and teen pregnancy.

As such, the Cups or Cash study uses cash incentives to implement the use of menstrual cups amongst girls in 84 secondary schools within the area of Kisumu, Western Kenya. Such financial incentives are frequently implemented in low and middle income countries (LMIC), as they have frequently demonstrated leading to significant changes in behaviour with positive health and education outcomes, particularly when strongly monitored (Ibid; Lahariya, 2009; Gertler, 2004; Lagarde et al., 2007). This is likely because the incentive provides a form of relief to individuals who engage in unhealthy behaviour because they have no other choice. In the CCG trial, menstrual cups were chosen over sanitary pads because they involve one initial investment, with cups lasting up to 10 years (Cups or Cash Protocol, 2016).

In this study, the cash incentive is in the form of a cash transfer (CT) accompanied by financial literacy trainings. Approximately 4000 girls are divided into groups of cash, cup, cash & mooncup, and usual practice to evaluate whether the use of mooncups, financial incentives or both will support girls to stay in school, stay healthy and ultimately reach their full potential. The study includes an educational component, where SWAP is responsible for teaching the girls about puberty, hygiene, financial literacy, and the use of the cup depending on the arm. Ultimately, the results of the project will generate a costs and benefits analysis to assess whether mooncups are an effective and efficient response to MHM



needs in the area. Additionally, feedback will be gathered from the girls, the community, and the ministry to help inform MHM policy (SWAP, 2016).

It can be concluded from literature on interventions that improving the condition of WASH facilities and services and MHM extends beyond the introduction or transfers of physical, infrastructural artefacts and developments (Greene et al., 2012; O'Reilly et al., 2008; Blanton et al., 2010; Onyango-Ouma et al., 2005). For example, a study by Greene et al. (2012), concluded that in order for these developments to be effective, behavioural changes must also be achieved through education and training. The aforementioned study provided extra latrines, soap and clean water and in a randomized control trial and ultimately observed a significant increase in *E. Coli* contamination amongst children who were in schools that were randomly assigned to the intervention group. Though an explanation could not be concretely found, the authors speculated that a lack of understanding of the importance of and use of soap, toilet paper and improved latrines lead to more unsanitary behaviour. Other studies, such as one about family planning advice in health facilities in Kenya demonstrated that despite receiving knowledge from biomedical professionals, also exemplify this. In this particular study, the authors found that women still consulted peers with regards to family planning concerns after receiving this professional knowledge, which ultimately yielded a practice that combined advice from both the local and professional sources (Rutenberg & Watkins, 1997). The literature thus alludes to the fact that external outputs may not be entirely sufficient to lead to positive behavioural changes and health outcomes, and thereby calls into question whether these outputs are appropriate for the context in which they are introduced. The present study will hopefully contribute to this dubious question.

### **1.3.1 The Mooncup**

Mooncup is a brand of menstrual cup from the United Kingdom. Menstrual cups are marketed as being environmentally, economically and physically friendly and therefore a good alternative to sanitary pads and tampons. For best use, it is important that a woman washes her hands thoroughly with water and soap prior to engaging with the cup. Once this is done, the cup can be folded (see Appendix IV for instructions on the box) in numerous ways prior to insertion. It is recommended that the cup be emptied every 4-8 hours. When doing so, the cup can be removed, emptied, wiped or washed, and then be reinserted. It is common to take up to three months to adjust to using the cup and being fully comfortable with it. When the menstrual cycle is over the cup needs to be cleaned, which can be done in several ways. The girls in the CCG trial are advised to place the cup in a container with boiled water for approximately ten minutes, let it dry and then store it in the accompanying bag (see Figure 1) in a safe place until next use. Figure 1 depicts a mooncup.



Figure 1: Mooncup<sup>1</sup>

## 1.4 Review of Existing Literature on the Introduction of Menstrual Cups in Developing Countries

Relatively little scientific information exists on the use of menstrual cup, particularly in the context of an intervention in developing countries. One study similar to the one presented in the current research project, is one conducted amongst Nepalese schoolgirls. In the research setting, the effect of menstruation on school attendance was found to be minimally significant, with menstruation leading to a decrease in school attendance. The researchers asked for the girls to keep menstrual calendars and randomized the girls into control groups and cup groups. They found that not only is the effect of the cup insignificant in improving school attendance, it also decreased the amount of school days missed, even though these were already minimal. Hence, the authors concluded that menstruation did not lead to major school absenteeism, as their literature study would suggest, and that improved provision of sanitary products would not improve this minimal absence (Oster & Thornton, 2011). On the contrary, a research team similar to the one currently conducting the CCG trial at present, report very positive

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<sup>1</sup> <http://greensofthestoneage.com/mooncup-menstrual-cup-review/>

findings following a feasibility pilot study in rural Western Kenya. This study was conducted in 30 schools, and comprised of a randomized control trial with pads, menstrual cups and normal practices. The authors concluded that the introduction of better menstrual hygiene management tools improved girl's concentration and comfort and significantly reduced school absenteeism over the control group. Of note is initial hesitation to use the menstrual cup due to fear of pain and discomfort, and in an isolated case misinformation regarding ability to give birth. Nevertheless, the majority of girls used the cup, adjusted to it and positively evaluated their experiences (Mason et al., 2015).

In another study conducted in South Africa, women were placed in groups in a randomized crossover trial to observe the acceptability and performance of a menstrual cup amongst women in Durban. Common issues women face during menses including not having access to affordable sanitary products and therefore feeling inhibited to conduct normal activities during this period (Beksinska et al., 2015). When compared to normal products as well as to tampons and pads, the menstrual cup produced higher scores of comfort, appearance, preference and efficiency in collecting the fluids. Of the women who evaluated the menstrual cup negatively, issues of discomfort, leaking and difficulty of use were mentioned (Ibid). Similarly, researchers in Zimbabwe tested the feasibility of using a cervical barrier, commonly used for contraception and STI prevention, as a menstrual cup. As is the case in all the aforementioned studies, menstruation poses a problem to women in Zimbabwe as they lack access to affordable and hygienic solutions to manage their menses and thereby experience disruption in their daily lives. Though in this study the cup was never introduced, all women that participated in the focus group discussions and surveys stated that they would be open to buy the device to manage their periods. The most prevalent reasons stated for interest were affordability and easy maintenance of the product (Averbach et al., 2009).

Finally, two papers from the same research linking technology adoption and menstrual cups were found. These are the only two papers that somewhat approximate the aim taken up in the present paper. In these studies, the effects of peer influence of technology adoption were studied using a menstrual cup as the technological item. The authors found that peer influence plays a large part in technology adoption, particularly with learning how to use a product. Less evidence was found for the influence of peers in the desire to use the technological item (Oster & Thornton, 2012; Oster & Thornton, 2009). Based on extensive literature searches, no research appears to exist linking the concept of appropriate technology with the use of menstrual cups for the MHM of girls in a developing country context. This gap is addressed in the presentation of this study.

Thus, in order to explain why a particular intervention was successful or not, it is important to investigate the factors that come into play when introducing a new technology or knowledge of sorts. This is because introducing a menstrual cup does not solely affect girl's health, wellbeing and school attendance, but is also influenced by social, cultural, economic, psychological, and infrastructural factors that girls encounter in their everyday lives. This study will hence study whether the mooncup can be considered an 'appropriate technology' for the MHM of girls in Siaya County, by examining the concerns of girls, teachers, parents and local leaders.

## 2 Research Questions

Main Research Question: To what extent is the mooncup an appropriate technology for the menstrual hygiene management of girls in Siaya county, Kenya?

- What are the concerns of stakeholders in the trial? How do these concerns align/conflict?
- What are the girl's experiences with the mooncup?
- What factors (i.e. social, cultural, environmental, personal) inhibit and facilitate the use of the mooncup
- To what extent does the trial meet the secondary criteria for cultural sensitivity and empowerment?

## 3 Theoretical/Conceptual Framework

### 3.1 Appropriate Technology

An appropriate technology is "the application of scientific knowledge for practical purposes so that it is suitable for a particular person, condition, occasion or place" (Oxford Dictionary). An appropriate technology must be compatible with local cultural and economic conditions (i.e. Through the use of human, material, cultural resources). Additionally, it must be self sustaining, cause little cultural disruption, and ensure that it will improve the welfare of the target population (Hazeltine, 2003). As will be elaborated on in the literature review, appropriate technologies reflect a general trend in development studies away from a focus on economic growth, to a more people focused approach which support more alternative forms of development (Ibid; Schumacher, 1973. This is often referred to as alternative development. Alternative development is characterized by "alternative practices and redefining the goals of development" (Pieterse, 2000: 344). The goal of alternative development, and thus also of appropriate technology, is to empower those targeted by development interventions.

#### 3.1.1 Appropriate Technology in International Development Studies

Development programmes have focused on capital and technology intensive interventions for many decades. The introduction of advanced technologies in developing countries designed in Western, highly industrialized, nations has long been disputed due to lack of physical and human infrastructure to support such technologies. In other words, these technologies require large quantities of capital and relatively minute amounts of labour, but are introduced in countries that lack capital and have an abundance of laborers. The result is a small segment of the population, often concentrated in urban areas, possess specialized skills who manage to accumulate labor. Indeed, despite these development efforts, issues of poverty, unemployment, and widespread inequalities persist in developing nations, begging the question of whether these interventions are appropriate (Akubue, 2000). In addition to country-specific circumstances, global trends as climate change, population growth, urbanization, and globalization affect what can be considered "appropriate" (Murphy et al., 2009; Elmendorf & Buckles, 1980). In response to this lack of progress, a shift away from capital intensive and economic growth focused development approaches have been introduced. One of these approaches to development, with regards to technology, is that of the design and introduction of so called 'appropriate technologies' (Akubue, 2000: 1). As stated above, an appropriate technology is "any object, process, idea, or practice that enhances human fulfillment through satisfaction of human needs" (Hazeltine, 2003: 3). Furthermore, "the appropriateness of technology is not limited only to job creation, using local resources, and utilizing renewable energy resources but it is also about being affordable, easy to maintain, compatible with existing infrastructure, efficient in the use of scarce natural resources, environmentally benign, and partial to small-scale" (Akubue, 2000: 3).

The field of appropriate technologies has been gaining popularity amongst academia of various disciplines in both engineering and social sciences since the 1980s. In 1980, two World Bank researchers conducted research on the importance of applying appropriate technologies to the improvement of WASH in developing countries. According to the authors, rural populations in developing countries have insufficient access to safe water and means of human waste disposal which puts them at risk for myriad diseases. One of the reasons that attempts to improve facilities have failed is the belief that the improvements were inappropriate for the context in which they were placed, leading to non or misuse and poor upkeep and ultimately no improvement in conditions. Thus, community participation and communication were deemed essential in the design and implementations of technologies that are deemed culturally, socially and environmentally acceptable by the end users (Elmendorf & Buckles, 1980). By reviewing seven case studies where WASH facilities, in the form of water pipes and/or latrines, were introduced in Central and South America, the authors concluded that the technological interventions succeeded in eliciting behavioural and health changes because the community was involved in identifying their needs, devising the intervention and providing the resources for its implementation. Through this, community members were able to understand the need for the intervention and how it would generate beneficial changes and thereby accept it. Furthermore, community members involved in the process were able to share information with neighbours and people from neighbouring communities and mobilize them to make the changes. Because of this, the sustainability of the intervention was guaranteed (Ibid).

According to Murphy et al. (2009) there are eight requirements or characteristics that a technology must encompass in order to be deemed appropriate. Firstly, the technology must meet the basic needs of the target population (1). Basic needs are understood to include food, water, education, employment, clothing, health care and so forth. Next, technology must be 'sound' (2). This requires that the technological item works as intended and that it can do so in the environment in which it is introduced. Additionally, the technology must be versatile and somewhat effortlessly introducible to any context (3). It must also make ample use of local materials and capabilities, as this will diminish costs of the item and decreases dependence (4). Along with this is the fact that a technology must be affordable to the majority of local population for which it is intended (5). This ties into the issue of sustainability (6). With regards to appropriateness, a technology must be sustainable both to the environment as well as to the population, where it can be easily maintained, reproduced and repaired when necessary (Ibid). Moreover the introduction of a technology should spur community engagement and participation (7). This requires the involvement of all stakeholders that will be in any way influenced by the technology, in all steps of the process of introduction, from making decisions to the actual implementation. Finally, the technology must be sensitive to local cultural and social conditions in addition to regarding gender (8). These eight characteristics will subsequently be of use for the present research, and aid in the coding of the research transcripts in order to determine whether to mooncup can be considered an appropriate technology. Furthermore these characteristics will be used to help structure the results section.

### 3.1.2 Related Concepts

The following concepts are included under the umbrella the appropriate technology, and are explained in further detail below.

Cultural Sensitivity: Due to the dimension of assessing the appropriateness of such a cash incentives study, the concept of cultural sensitivity must be mentioned. According to Rasnicow et al. (1998) there are two structures at play: surface and deep structures. Surface structures refer to the matching of the procedures, materials and messages of the intervention to superficial characteristics of the target population. The deep structures refer to environmental, cultural, historical, social elements that impact the targeted behaviour in the target population (Ibid).

Empowerment: “Empowerment is the process by which a girl expands her current and future ability to make and act on strategic life choices. Empowerment outcomes can include agency, social support, decision-making control, and security” (Geertz et al., 2016). According to Mosedale (2005), there are four generally accepted dimensions to what empowerment means in the international development concept. Firstly, a women must be disempowered in order to be able to empower them. Secondly, whether empowerment is ‘achieved’ cannot be determined by a third party. Rather, it must come from the female herself. Thirdly, being empowered means that a person can act in a manner to achieve what she finds important or desirable. The last element of empowerment is that it is processual and not absolute. As such, one cannot be fully empowered, but only be more or less empowered than they were at an earlier point in time (Ibid). In international development studies in general, empowerment is considered a form of pursuing social justice for the enhancement of human welfare as well as a “means to other ends” (Malhotra & Schuler, 2005: 2). Regarding the trial investigated in the present research, the empowerment of the girls is considered a means to other ends in terms of enhancing pursual of education and the implications of this for the girls’ futures and their subsequent contribution to Kenya’s national development.

Power: Power is a much studied concept in social sciences, and closely ties into the prior concept of empowerment. According to some, there are two opposing forces of power: repressive and liberatory. The former is a constrictive power that forces a subject to act a particular way, and the latter stimulates the subject to act how he or she wishes (Brookfield, 2001). Additionally, power is not related to specific institutions, but rather becomes apparent “with practices, techniques and procedures” (Townley, 1993: 520). In order to study power in practice, one must study exactly those practices, techniques and procedures that leads to its creation (Ibid). In the context of this research, power can be examined in several ways. In one way, there are the cultural power dynamics that cause stigmatization and discrimination of girls (see explanations of concepts below). In light of the ‘appropriateness’ of the intervention, the power dynamics between SWAP and the way they educate the girls can also be observed and analyzed.

## 3.2 Multi-level Approach

Multi-level Approach: The use of a multilevel approach in social science stems from an increasing aversion to analysing phenomena and behaviour from one single level of social organization, to an increasing realisation that issues are complex because they occur simultaneously on multiple levels. These analyses were considered responsible for shaping a one-dimensional social reality that was not holistic and therefore not accurate. In response, the multilevel perspective was devised. Under this perspective, one “insists that the object of research should not be isolated but rather seen as linked to ‘higher’ and ‘lower’ levels of social organization” (van der Geest et al., 1990: 2016). This perspective posits that change at one level (or the absence of change) cannot be explained without considering links with higher and/or lower levels of social organization. Links between the several levels usually materialize in forms of communication either by man or through materials. Furthermore “underlying the multi-level perspective is the assumption that is/are carried around does not remain the same thing during its journey. The meanings of concepts and objects, of words and institutions change as they move from one level to another” (Ibid: 1026).

This perspective will be relevant for the present research for several reasons. Firstly, it can help explain why the girls obtain their information in the way and from the sources that they do. Secondly, it can help explain how girls adapt their understandings and perceptions of menstruation through the educational aspect of SWAP’s study. Finally, it will aid in explaining why the study proved successful in changing the girl’s behaviour or not. The downfall to this approach is that it typically comprises of local, regional, national and international levels of social organization which is likely to extend beyond the scope of the present research. Nevertheless, several levels can be identified in the present field of research: the girls, the households, the community, and the government (with regard to national educational and WASH policies).



## **4 Research Design and Methodology**

### **4.1 Research Context**

#### **4.1.1 Kenya**

The Republic of Kenya is located in Eastern Africa. Its large population of approximately 46 million people is comprised of mostly young Christians. The country is ranked 145 out of approximately 188 on the Human Development Index (UNDP, 2016), with steady improvements being made over the last decades. The population is steadily growing as a result of high fertility, lack of family planning and reduced mortality. This rapid population growth poses great issues with regards to public health, infrastructure, employment and the country's general development. In the urban areas, 81% of the population has access to improved drinking water, whereas only 56.8% of the rural population have access to it. Similarly, 31.2% of the urban population and 29.7% of the rural population have access to improved sanitary facilities. As such, parasitic infections such as schistosomiasis and general diarrheal disease resulting from unhygienic water and food practices affect the majority of the population (CIA World Factbook, 2015).

#### **4.1.2 Siaya County**

The CCG trial takes place in four sub-counties within the greater Siaya county (see Figure 2 below for location in Kenya), namely Ugunja, Ugenya, Gem and Alego. In 2011 the county had a population of 842,304, with people aged 15-64 representing 50.9% of the population (Daily Nation, 2011). The majority of the population are Luo, who engage largely in fishing and farming (Mason et al., 2015). The Luo are the fourth largest ethnic group in Kenya (Ibid).

With regards to menstruation, there is reported discomfort on the part of mothers and teachers when discussing menstruation because the subject is linked to sex, which is strictly discussed in private amongst adults (McMahon et al., 2011). These social realities result in the lack of approachable sources of information about menstruation. Additionally, the lack of WASH facilities in schools and widespread poverty mean that girls remain absent from school at the time of menstruation for fear of feeling and being perceived as dirty (Ibid; Bharadwaj & Patkar, 2004; Sommer & Sahin, 2013; Jewitt & Ryley, 2014)



Figure 2: Siaya County (in red)<sup>2</sup>

Maybe a couple of general sentences here about your 4 qualitative methods, and how they complement each other to find out different things?

## 4.2 Semi-Structured Interviews

In total, 30 semi-structured interviews were conducted. These interviews were conducted with trainers from SWAP who go into the field to train girls on puberty, hygiene, and, depending on the trial arm the girls are in, on financial literacy and the use of the mooncup. To ensure that these interviews could be easily accessed, I gave myself a task within the team. SWAP's data manager asked the trainers to write short reports and narratives about each training. These were to be written after a training so the information would still be fresh. It was clear that the trainers were not happy with the extra task, so I offered to write the reports. For this, trainers were asked to sit with me in the mornings to discuss the trainings from the day before. For these reports and interviews a brief template/guide was made (see Appendix I) and used to guide the process. Some of the trainers were not comfortable with being recorded, in which case extra detailed notes were taken. All individuals were assured of their anonymity, as they were told their names would be omitted in addition to any details (such as gender or function within the organization) that might reveal their identity. Individual reports were compiled into a booklet and submitted to the study coordinator on a weekly basis.

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[https://www.google.nl/search?q=mooncup+box&source=lnms&tbm=isch&sa=X&ved=0ahUKEwietOGW8ZvTAhUBtBoKHen1DAEQ\\_AUIBigB&biw=1821&bih=897#tbm=isch&q=siaya+county&imgsrc=1zTxab\\_K57t\\_LM:&spf=388](https://www.google.nl/search?q=mooncup+box&source=lnms&tbm=isch&sa=X&ved=0ahUKEwietOGW8ZvTAhUBtBoKHen1DAEQ_AUIBigB&biw=1821&bih=897#tbm=isch&q=siaya+county&imgsrc=1zTxab_K57t_LM:&spf=388)

### **4.3 Participant Observation**

Due to strict trial protocol the girls' trainings and Focus Group Discussions could not be observed. Nevertheless, I was able to join the team to the Leader's Orientation Meetings organised by SWAP and KEMRI. During these meetings, a total of 94 influential leaders from the sub-counties where the trial schools were located came together to learn about the study. These leaders were representatives from the Ministry of Health (MoH), Ministry of Education (MoE), the schools, nurses, and religious instances. These people were chosen and invited because their approval of the trial was considered essential for its procession. During these trainings findings from the pilot study were dispelled, proceedings of the trial were shared and a detailed explanation and demonstration of the mooncup was given. Following the presentation the participants were able to ask questions (see Appendix III for questions asked and number of people attending each meeting), which gave insight into social and cultural elements that come into play with the introduction of a menstrual cup. Furthermore I was able to be present at meetings where trainers and researchers from the CCG trial discuss practicalities, which provided extra insights to issues they encounter when interacting with the girls.

### **4.4 Focus Groups Discussions**

Transcripts from FGDs conducted during and after the pilot study were provided by the study coordinator from the LSTM. These FGDs capture the girls', parents' and teachers' experiences with the trial, and more specifically, with either the mooncup or sanitary pads<sup>3</sup>.

6 FGDs with girls (N= 65)

6 FGDs with parents (N= 60)

6 FGDs with teachers (N= 59)

### **4.5 Data Analysis**

All interviews were transcribed verbatim. The transcripts, and detailed notes in the cases where interviews were not recorded, were manually coded. Each code was assigned a colour, and written down on a separate sheet of paper. Sub-codes that arose while transcribed were subsequently added to the list of codes. As some interviews contained more details, and thus often generated more codes than others, the process of reading and coding was repeated to ensure all relevant information was coded. Following this process, a coding tree was created (see below).

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<sup>3</sup> The intention was to conduct one final FGD with all the trainers at the end of the fieldwork period, in order to discuss and validate findings and preliminary conclusions. In order to ensure that all trainers would be present, the date was set two weeks ahead of time. Ultimately, over half the trainers took the day off to extend a national holiday and visit family, and the other half had to go into the field to train any girls that had been left out in previous trainings. In the end, only one of the trainers was available to discuss findings and answer questions that arose from interviews.

## 5 Results

All girls in the CCG study receive training on puberty and hygiene. The girls in the mooncup arm receive additional training on the use of the mooncup, which details how to fold for insertion, how often the cup should be emptied, how to handle the cup during and after menstruation and how to store it. Additionally, girls in the control and mooncup arms receive one bar of soap each to support them in maintaining their hygiene. Girls in a cash school receive additional training regarding financial literacy. Finally, girls in combined schools receive the full range of trainings. The following sections will detail the findings that arose from interviews and participant observations. Additionally, the findings presented in this section capture the girls' perceptions, fears, concerns and excitement about the mooncup. Data will be presented from both the trainer interviews as well as from the FGDs with the girls during the pilot study. This will allow for perceptions prior to use of the cup as well as perceptions from girls who have already started using it. To provide structure, this section will be structured in accordance to the eight characteristics for 'appropriate technology' outlined by Murphy et al. (2009). In total there are seven sections, as the local capabilities and affordability characteristics were merged into one section. Within each section a distinction will be made with girls' perceptions and outsider's perceptions.

### 5.1 Coding Tree

[prior to introduction of cup]

Questions [during trainings]

- by girls
  - puberty
    - menstruation
      - length of menstruation
      - irregularities
      - cramps
      - myths/misinformation
  - hygiene
    - hand-washing
    - bathing
      - during menstruation
- mooncup
  - pain
  - comfort
    - tail of cup
  - storage
  - length of tail
  - size

- smell
- infections
- cost
- where to buy
- how to clean
- can the cup be full
- amount of time before emptying
- use in combination with other sanitary items
- how to insert
  - position
  - folding technique
- interference with activities
  - urination
  - biking
  - swimming
  - sleep
  - sex
  - caning [punishment by teachers or parents]
- misinformation
  - can the cup travel upwards
  - can the cup be stuck
  - leaking
  - sharing
- interference with virginity (1)
- by leaders (MoE/MoH/Nurses)
  - cost of cup
  - allergies (to silicone)
  - virginity
  - ease of use
  - sharing
  - damage to cup
  - why only one cup
  - texture
    - comfort
  - acceptability amongst girls
  - why two different sizes
  - intensity of menstrual flow
  - infection
    - hygiene
  - sustainability
    - water supply

- at school
- at home
- durability

[After introduction of cup]

Individual Perception of Cup

- comfort
  - physical
    - sleep
  - mental
- ease of use
  - improvement over time
- personal hygiene
  - odor
  - sense of cleanliness
  - being able to take care of oneself
- effect on daily activities
  - running
  - bike riding
- school
  - attendance
  - concentration
    - classroom
    - exams
  - participation
    - sports
    - classroom activities
  - experience in school
  - academic performance
- fear
  - improvement over time
- pain
  - improvement over time
- comparison to 'usual practice'
  - itching
  - leaking
    - staining
  - odor
  - stress
  - infection
- challenges

- initial discomfort
- physical environment
  - water
    - lack of availability of treated water
      - at home
      - at school
    - contaminated water
      - from river
      - from unknown source
    - availability not consistent
      - maintenance
      - weather
  - soap
    - lack of at home
    - lack of at school
  - latrines
    - hygiene
    - drop in
    - lack of privacy
  - no hand-washing station at school
- social
  - knowledge of menstruation amongst peers
    - female peers
    - male peers
    - siblings
  - misconceptions amongst peers
    - HIV
    - pregnancy
    - virginity
  - jealousy
- financial considerations
  - reliability
  - stability
  - parents
    - school fees
    - other expenses
  - stress
  - durability
- environment
  - waste management
- sexual education

- pregnancy

- STI

#### Outsider Perception of Cup

- demeanour

- confidence

- agency (for girls)

- academic

- motivation

- attendance

- performance

- social

- peer education

- interaction with peers

- virginity

- challenges

- physical environment

- dirty pipes

- distance between hand-washing station and latrine

- environment

- waste management

- behaviour

- hygiene

- odor

- leaking

- free

- communication

- with teachers

- with parent(s)

- financial considerations

- relief

- other expenses

- effect on household

- comfort

- pain

- size

- ride bike

- fetching water

- cost

- accessibility



## 5.2 Basic Needs

In order for a technology to be deemed appropriate, it must meet the basic needs of the user.

Interviews and observations revealed that the mooncup meets three basic needs, as defined by Murphy et al. (2009), namely sanitation, education and, though indirectly, employment. In terms of sanitation, girls reported an enhanced sense of cleanliness following the use of the cup. One reason for this, is that girls experienced a reduced sense of poor odor. When asked what created this poor odor, one girl stated “maybe [girls] come to school with one piece of pad. They do not have enough to use, and the blood leaks to the clothes, then they start smelling in class because [they] do not have enough pads to change” (P12, Wagwer<sup>4</sup>). Following the use of the mooncup, this girl exemplifies the improvement she experienced by saying “we have become clean, nowadays we have never heard of girls smelling [having bad odor]; we are clean” (P12, Wagwer). Teachers also noticed this difference, with one teacher saying “[...] Sometimes you could go to class, particularly in the afternoon when it is hot, you would actually sense a lot of bad odor types. But these days, bad odors are not there” (P1, Nyalunya). Similarly, a parent stated that she noticed a change in her daughter’s hygiene, as she said “What I have enjoyed about the study ever since my daughter started using Mooncup, I noticed that she is very clean. Before I could see those things [menstrual blood] staining her clothes, so that is the happiness I have experienced” (P4, Khadua). One teacher also noticed a difference between girls enrolled in the study, and girls who were not in the study, namely that “the study has made these girls to be clean, the few who are in the study are very neat” (P9, Nyalunya). Finally, girls also mentioned a difference in terms of the likelihood of developing an infection with what they were using before the mooncup. One girl illustrates this by saying “There are girls who are using mattress, and things like mattress can make someone to develop infection in the vagina, they are using dirty materials, maybe they are not properly cleaned. But there is nothing like you haven’t washed the mooncup properly, you just boil after using. Then when you will use it again during your menses” (P9, Wagwer)

Another important change is that noticed in the girls’ academic performance in several ways. Firstly, girls mentioned an improved sense of concentration after they started using the mooncup. One girl mentioned a notable difference when using the mooncup during an exam period, as she said “I have noticed the difference because when we are doing the exams and you are on your menses, then you use the pads, you will be worried but if you insert mooncup you can even stay for more than four hours and you are not worried unlike pads it will force you to ask for permission to go and change it” (P7, Barkatado). Correspondingly, another girl stated “now if you are doing exams you do not have stress that there might be leakage on your clothe, but before we were given mooncup, we were under a lot of stress, you want to change pads every now and then, at that time you are in the exam room, the way you keep going to change, the time for doing exams also get exhausted, so it will force you just to hurry

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<sup>4</sup> The P stands for Participant, and the number that follows is one randomly assigned during the interview. The word afterwards is the location of the school the girls attend.

doing it so that you just collect your paper for the sake, then you will find yourself failing, but when you have mooncup you are not stressed up, you just do the exam and you perform well” (P9, Wagwer). Another girl mentioned a diminished sense of stress at school by saying “when you use mooncup, and the teacher comes to class, you will not be worried unlike when you use pads, you will be so worried, you want to go change in the latrine, and mooncup when you use, you will just feel it full, and when it is full, you will feel pain in your lower abdomen then you go to change it” (P3, Barkatado).

A second way in which academic performance is improved is that the mooncup also changed girls’ attitudes towards coming to school while menstruating, as one girl said “[I] am happy coming to school. Because before when I was using pads, I did not enjoy coming to school, because I was feeling embarrassed that the blood might leak, but since I was given mooncup, I can play with other pupils without fear” (P11, Wagwer). Finally, one student referred to the improvement in school attendance: “[...] also it has made girls who were not coming to school because of lack of pads, so they were not coming to school during menses, because sometimes it can stain your clothes, but us since we have mooncup it cannot leak” (P9, Wagwer). One parent linked the issue of hygiene with improved school attendance resulting from using the menstrual cup, as she said “[...] My daughter who is in the study is very clean, she cannot absent herself from school, she goes to school daily, she does not experience any problem, so she is clean.” (P1, Khadua). Likewise, another parents said “[...] I noticed that the girls are very much free, that fear that she had when experiencing menses, before when she was in the study, I could notice that she misses school to avoid the embarrassment, but ever since the study, she is so free she can even go and sit with her fellows feely, because she will not experience embarrassment. So we are happy about it” (P10, Khadua). Similarly, teachers noted a difference in the girls who were enrolled in the study. One teacher said “I want to say that class attendance has also improved, because sometime back they could absent themselves because of the stigma, so this time those who are in the program, they are attending their classes well” (P5, Barkatado).

Teachers also raised an issue related to empowerment, namely that the girls are now able to take care of and help themselves. One teacher said “[...] from my observation these girls in school here have been made aware on how to help themselves and they know how to go about their problem” (P1, Nyalunya). In addition to this, one teacher related the provision of the mooncup to a sense of confidence witnessed in the girls by saying “thank you very much, somehow it has given self confidence in the girls, like the few who are selected in the study, they are confident, even if you ask them questions, they have that confidence and they are happy about it” (P8, Nyalunya).

### **5.3 Sound Technology**

Another criterion for technology appropriateness is that the technological item must work well. In the case of the mooncup, this relates to general comfort and leaking. During all the trainings on the mooncup, the girls indicated their fears and worries towards the comfort of the cup, as it appeared to be too large to be comfortable to them. Similarly, the trainers report seeing concerned looks on the girls’ faces when revealing the cup to them during the trainings. One girl exemplifies this by saying “the first

days I was afraid to use mooncup” (P7, Barkatado). Another girl shared that her peers did not want to participate in the study: “some they do not want to be in this study, because they think it is difficult to use this thing [the mooncup]” (P7, Wagwer) and when asked why they might think that she responded “because they do not know how to fold and insert it” (P4, Wagwer). Indeed, this fear is related to the lack of familiarity with the mooncup. The majority of girls reported feeling more comfortable as time passed and familiarity grew. This is illustrated by one girl’s response, who said “I do not see any problem, is just that when it was brought out the first time, it was challenging when it comes to inserting it, we were not inserting properly” (P1, Barkatado). Her peer similarly stated “before when I was using it, I was feeling pain but now I do not feel any pain [anymore]” (P5, Barkatado). Ultimately, the majority of girls did not report any discomfort. As such, one girl shared “when we wear it, we feel very comfortable, but when you use pads or even cloth, when you sit you do not feel comfortable, each and every time you stand you keep checking your back” (P7, Barkatado).

In relation to leaking and itching the girls also reported positive results. One girl said “it is easy to use, and also the blood cannot leak” (P8, Wagwer), and her classmate indicated “it has helped us, when I was using pads I could itch, at least now am using mooncup I do not experience itching” (P12, Wagwer). Yet another girl said “by the time I was using pads, I was under a lot of stress, because you know when you use pads and maybe you forgot to change, and sometimes you have heavy flow, it can leak to your clothes, you are so stressed but nowadays I do not have stress” (P10, Wagwer). In another comparison with pads, one girl noted “I do notice the difference because when you wear mooncup, there is no time to worry that the blood might leak unlike when we were using pads. Because the blood cannot leak when you use the mooncup” (P4, Barkatado). When it comes to other common activities such as running, the cup also proved effective. One girl mentioned “you can even run while using mooncup unlike when using the pads which you might think that it is going to come out and fall” (P1, Barkatado). Similarly, one peer said “let’s say sometimes you were supposed to go for sports so when you wear it, even when you want to play it cannot fall unlike the pads which might fall” (P6, Barkatado). Related to this is the shame that often accompanies menstruation, and wanting to hide this from one’s peers. One girl said the menstrual cup helped her with this: “when we are experiencing our menses, no one can realize and also it does not leak to our clothes” (P5, Wagwer).

Parents reported similar experiences when observing their daughters after they started using their menstrual cups. One parent reported initial discomfort when using the cup for the first time: “the only thing I can say is when the girl starts using it for the first time she feels pain. That is the only bad thing we can talk about” (P8, Khadua). In accordance, another parent said “there is no worse thing, is just just something new that you have never used before, you must find it challenging using it. That is the only problem, because they have never used it before, they were only aware of the pads and not the ones that are inserted, they have never used it before, that is why they were having pain” (P11, Khadua). Nevertheless, parents also reported some negative aspects to the cup that were not detailed as often in the discussions with the girls. One mother shared that the cup negatively interfered with the daily activity of riding a bicycle: “I have also not experienced any worse thing, is just that my daughter normally goes to fetch water using bicycle, so when she is wearing mooncup, she finds it difficult riding a

bicycle, she feels as if the mooncup wants to come out” (P9, Khadua). On a similar note, one teacher shared her belief that the use of the cup is not quite so straightforward, as “they also complain that when it is full, when removing it sometimes they wash themselves with blood, so they feel shy and do not come back to wash their hands” (P1, Barkatado).

## 5.4 Flexible Technology

To meet this criterion, a technological item must be easily adaptable to the environment in which it is introduced. The ‘basic requirements’ to facilitate easy use of the mooncup are: latrine with a door for privacy, water and soap. Though the cup does not require cleaning every time after emptying, girls must wash their hands with water and soap before and after emptying. The trainers and WASH survey conductors mentioned that at a large portion of the schools the WASH situation is not up to par. In most cases this means that there are not enough latrines for the amount of students, that there is no stable and consistent source of water and that there is no soap. To counteract this, the study provided girls and schools with soap. Nevertheless, this was done for study consistency and to ensure reliability of the results; it is not a reflection of actual conditions.

Furthermore, at the end of menstruation the cup must be placed in a container with boiled water for approximately ten minutes. It was thought that with the current drought, there is a possibility that water is scarce to the extent that parents would be unlikely to allow girls to use water for the purpose of cleaning the cup. Additionally, the possibility that girls might not find the privacy to clean their menstrual cups was considered. Nevertheless, these issues did not surface during the trainings. Girls did, however, mention other issues. One of these issues are latrines, and the inability to retrieve the cup if it falls in. One girl experienced this and said “when I was removing it, it became slippery in my hands then it fell inside the latrine” (P4, Barkatado). Notwithstanding, girls also mentioned that privacy is a main concern. With regards to privacy at school, one girl said “sometimes you can go to the latrine to change, then another pupil comes running and opens the door then she finds you squatting there” (P6, Barkatado). Relating the physical impracticality of the latrine itself and the lack of privacy, another girl said “the latrine pit is too big so it is difficult how to position yourself when changing, and also some girls do not knock the latrine door when they come” (P2, Wagwer). Also, not all girls have latrines at home, which poses a problem to emptying the cup. Though they do find alternative strategies, it remains a pertinent issue. One such alternative strategy was illustrated by one girl, who said “you can use your neighbor’s latrine. [...] Sometimes you have more than one neighbor” (P, Barkatado). Another instance where a nurse from a clinic linked to a CCG school approached SWAP’s data manager raised another important issue regarding practicality. This nurse posited that, in practice, the mooncup was a great idea, and that they could train the girls on hygienic practices all they want but that, in theory, it would not be possible for all girls to adhere to what they are taught in trainings. The example she mentioned was about water catchment systems in many houses. These pipes are often rusty, dusty and not cleaned, but water passes through them and households use them for washing food, clothes and themselves. Thus, if girls use dirty water to clean the most intimate part of their bodies, this has the potential to do more harm than good. In the final interview, one trainer also articulated that to most

people in Kenya, particularly in rural settings such as the one where the study is taking place, “it is socially and culturally normal to fetch and consume water as it comes from the source, without treating it for consumption” (E, Kisumu).

## 5.5 Local Capabilities & Affordability

To ensure appropriateness, a technological item must make use of local resources. This is to decrease dependency and to lower the costs of the technology, and thereby make it more readily available to all.

The mooncup is a brand of menstrual cup from the United Kingdom. The cost of one cup is approximately USD \$30 (roughly KES 3,000). It is made of medical-grade silicone (Mooncup Website, 2017). In Kenya, menstrual cups of a different brand (also from the U.K) are available mostly in Nairobi, and two pharmacies in Kisumu at the cost of KES 1,500 (roughly USD \$15). One package of sanitary pads costs approximately KES 150 (roughly USD \$1.50), and are available in most, if not all, supermarkets. Considering that most families in Siaya county reported a financial ‘burden’ when needing to buy sanitary pads, it is unlikely that families will be able to afford buying a menstrual cup, however much money it would save them in the long run. This was echoed by one of the parents who said: “[...] when we were told the price of mooncup, it is a lot of money, and the way I am I could not afford to buy it, and it was brought free for my daughter, it was worth it and even much better” (P, Khadua). Furthermore, a cup can last up to 10 years. Nevertheless, once a woman has given birth she must switch to the bigger size of mooncup. Thus, the mooncup will not last each girl 10 years and will require them to buy a new cup or resort back to previous practices if they are unable to afford it. Linking this to the practical issues mentioned before, it is also quite likely that a girl will lose her menstrual cup at some point during these 10 years. Furthermore, the cups are not produced in or with local materials from Kenya.

Despite this, when the cups are provided (for free) when participating in the trial the girls and their parents or guardians report positive financial repercussions. One of the ways menstrual cups are promoted is by highlighting their long term financial benefits. It is thought that after 6-8 months the cup has paid itself off and will start saving costs. These benefits were felt by the girls, who were evidently aware of the long term cost effectiveness. As such, one girl said “sometimes you do not even have money to buy pads, but you know mooncup is always there, you just wash then you keep for next time use” (P4, Barkatado). Another girl stated “to me I’m happy about the mooncup, because before we were given mooncup, we were spending a lot of money to buy pads, so we do not spent that money any more” (P1, Barkatado). Yet another girl demonstrated being aware of the financial strain menstruation was placing on her mother, and posited that the mooncup provided a good solution: “before when we were using pads, the money they were using to pay fees was being deducted to buy you pads, but now she spends all the amount in paying the fees” (P4, Wagwer). Similarly, one girl linked the financial burden to her family situation in addition to the issue of school attendance: “the father will say that he only has enough [money] for the food; he doesn’t have enough to buy pads. So it will cause a misunderstanding, so that one can make you to miss school because you do not have material to use”

(P4, Wagwer). Additionally, one peer said “because before they could spend to buy pads, but since mooncup participation came they do not spend” (P2, Wagwer). In correspondence, one girl noted “it makes our parents to feel happy, because before she was finding it difficult to spend money on the pads and maize flour, but now all that money is spent on maize flour. Because she was feeling that if she spends that money on pads, what about the maize flour! So nowadays we no longer ask for money to buy pads” (P4, Wagwer). Linking this financial burden to the ability to pay school fees, one participant noted “now [parents] can pay the school fees very comfortably, because when you wear mooncup you do not have stress you can concentrate a lot, and pass your exams, so they will be happy with your performance then they just pay your fees” (P7, Wagwer).

One girl linked it to the practical issue of menstruation starting abruptly, and linked this to not having money and thus not having pads on time. To her, the mooncup provided a reliable solution, as she details “mooncup is good because sometimes when your menses starts abruptly and you did not have money to buy pads, you will just go to where you kept it then you take it and you use it, so you do not even waste time that you are going to ask someone money for buying pads” (P4, Barkatado). In general, the sense of alleviation from the financial burden was captured by one girl, who said “it has helped us a lot and even it has relieved us from burden of buying pads” (P7, Wagwer).

At the third Leader’s Orientation Meeting, a conversation took place with a representative from the MoH. When asked about his general perception of the Mooncup, he responded by saying: “I don’t know. I don’t know about the comfort. The issue will be acceptability”. When asked who’s acceptability he was referring to he said “the girls, they are the end users after all”. Finally, when asked if he thought that the mooncup would be a good solution for the menstrual hygiene struggles experienced by girls, he responded by saying that “it could be, because it is about the costs. You will find that buying sanitary pads is very expensive in the long run. And it is helping the poor families, which is good” (R, Gem).

Parents also positively experienced their daughters using the menstrual cup as it relieves them of the financial pressure that comes with buying these products for their daughters. Some responses from parents include: “what has made me happy since my daughter joined the study is, have not been giving her money to go buy the pads, so have been saving that money, I can even do something else with it. So the I think the study is good” (P9, Kaudha). The ability to save money because of the reduction in expenditures on sanitary pads was echoed by another mother who said ‘I also wanted to say that ever since the study, nowadays your daughter cannot ask you for money to go buy pads to use, so we are saving those money and use it for something else” (P6, Khadua). In accordance, another parent stated “so that thing [mooncup] has helped a lot, they are also free, she shared with me that mooncup is very good, and it has helped her a lot, and also you have helped the parents since the burden of buying Always [sanitary pads] has been reduced” (P3, Oseno). In addition to this reduction in costs, one father also mentioned not being able to afford soap for his daughter, which was also provided through the study and further relieved his burden: “we were buying Always [sanitary pad brand], and the soaps they are also being given so it has reduced our burden” (P, Oseno).

## 5.6 Sustainability

An appropriate technology must be sustainable in two ways: environmentally and locally. Environmental sustainability pertains to a reduction in harm done to the physical environment. Local sustainability concerns the ability to maintain, recreate and fix a product after those who introduced the technology have left the area to further reduce dependence.

During the fourth orientation meeting in Alego Sub-County, one woman representing the MoH raised an issue that she faces in her work, namely the issue of disposing of sanitary pads. According to her it is nearly impossible to adequately coordinate placing bins strategically between schools, and then to get each school to install special bins in their female bathrooms and dump them in the large communal bins once per week. Furthermore, once these bins are collected, she said the practice is to burn the pads. Unfortunately, she believes they never entirely manage to get rid of all the waste, and adds that it is burdensome in terms of resources and towards the environment. At the end of the presentation about the mooncup, this lady desperately pleaded for the trial to be expanded to all the sub-counties because both the girls as well as the ministerial management need it.

It appears that in the sub-counties where the above woman worked, there were at least some systems in place to attempt to deal with sanitary waste. In many cases these systems are not in place. Personal observations include disposed sanitary pads scattered along streets or in fields, which is explained by the striking lack of bins for these materials in bathrooms. The consideration becomes to leave a sanitary product in for the entire day until one is home to dispose of it there, or to simply dispose of it outdoors. One of the parents confirmed this observation, as she said that “[...] before when she was using the pads, you could even find pads on the floor, mooncup is easy to use, after keeping it in a place it just stays there” (P2, Khadua). One girl echoed this by asserting “the way we are in the study, there are some girls who are using pads, if you go to their environment, you will come across pads wrappers which are disposed carelessly outside, but the girls using mooncup, you cannot be careless with your mooncup, mooncup is something that when you are done using it, you keep it, for the next use” (P9, Wagwer)

The reliability provided by the mooncup on a long term basis was also noted by many of the girls. Hence, one girl declared that “mooncup has made me happy because I can use it for many years, but pads you know when you buy it and you use it, that is the end. But mooncup you have gotten chance to use mooncup for long” (P4, Barkatado). In another school, a girl noted the long term impact the mooncup would have on her and her peer’s lives: “It will help us in our future” (P, Wagwer).

In relation to section 6.5, menstrual cups are not produced in Kenya, which makes it nearly impossible to replace or fix a cup if it is lost or broken. This is the result of several aforementioned factors, such as country of origin, the price of cups, and the difficulty some girls experience in their own environment to practice proper hygiene for themselves and their cups.

## 5.7 Cultural and Social Appropriateness

In addition to the above mentioned criteria, a technology must be culturally and socially appropriate for it to be considered an appropriate technology.

At all the four Leader's Orientation Meetings, leaders were very excited and receptive towards the mooncup and asked many questions (See Appendix III). Nevertheless, there was one issue that was consistently raised and thus seemed of great importance: virginity. The first time this was asked, the study coordinated responding by explaining that there are two ways one can think about virginity, namely the actual act of penetration, or the tearing of the hymen. Upon saying that, she stated that in the study they consider losing of virginity the actual act of sexual intercourse. In response to this the man who asked the question mentioned that to him (collectively, "to us") it referred to the tearing of the hymen. By reviewing literature first it became apparently that to many Kenyan ethnic groups, including the Luo, a virgin was worth more bridewealth, and that this had to be proved on the wedding night by the appearance of blood. If bleeding would not happen then, the wedding could not go on and much shame would be bestowed upon the girl and her family. Equipped with this knowledge, subsequent conversations about this topic came up and an attempt was made to understand the relevance of the issue of virginity in the present time. In one such conversations, the male I spoke to claimed that most Kenyans have changed over time, and do not actually require traditional notions of virginities. When asked why the issue kept surfacing, he stated that it is still in people's minds, but that in practice it was not so important anymore. This was reiterated by a leader during a meeting, where he claimed that many Kenyans have modernized and would welcome the new technology of the mooncup, and that those who still valued traditions should simply be respected. One teacher also echoed this sentiment, as he said "You know madam, we the Luos we rarely change, so it is usually difficult for someone with roots from Luo community to change, it is not easy, so those who have tried to change have benefited, and those who have been not for change, have remained dormant. So this depends from the family where a person is coming from, but it is not easy to change a real Luo. Like in these areas where we are working in, they still believe in those traditional ways of life, so the mooncup is good, very good, so those who understand, I hope it is helping them, but those who do not understand, I do not know" (P3, Barkatado). Similarly, one teacher said "if there are some parents who allowed their girls to remain in the study, then some parents have accepted it, that shows that they love it" (P4, Barkatado).

Contrarily, some teachers did mention negative effects related to virginity: "Some say you know it is hard, now when you insert it in the vagina of these young girls, that membrane is still soft, and when it has not been broken it will break. So when you insert they break, and so they say, you know in our culture, they wholly appreciate that virginity, so when you insert the cup, they do say it breaks the virginity, so now they do not like it. [...] Virginity is valued because they say that, they say that when someone's virginity is broken, then they think that a girl had met a man earlier. And now you know they say that [the mooncup] is not good" (P2, Barkatado). Another teacher mentioned understanding that



several activities could break the hymen, but that the nature of the activity was important: “Then I want to say that the manner in which the virginity issue is broken is through a number of activities some of which are allowed, but the one where a girl is touching the private part, is just the same way a man can touch the same place and break the virginity, but those other ones like sports and whatever view, are not regarded to be serious like where the girl touches the private part” (P, Barkatado). In addition to virginity, misunderstandings with regards to the cup were also mentioned. Teacher shared that upon hearing of the study, many girls were interested in participating but that eventually many dropped out. When finding out why so many girls dropped out, the teacher revealed the connotation of the cup with family planning as an off-putting factor, and that many parents forced their daughters to withdraw. To explain, he said “what they were saying is that they got to suspect the content of the mooncup, some were feeling that the mooncup is made up of some substances or chemicals that can be permanent control” (P5, Barkatado).

Parents also reported positive outcomes related how the cup changed their daughter’s behaviour in social situations at school as well as in the house. This thus spoke to their acceptability of the cup. Though most parents present were mothers, some fathers were also present and detailed their experience with their daughters and the mooncup. One father profusely thanked the team and said he would continue supporting his daughter because “I have to try advising her, I have to share with her ways in which she can take care of herself and to avoid pregnancy, because you know wondering around [to mean having boyfriend] is what can result to that” (P3, Oseno). Another father stated “What I’m wondering is, if it were the past life, girls were afraid of their fathers, they were not free with their fathers, but now I’m very free with my daughter. I have seen it [referring to mooncup] she brought it and showed it to me, then I asked her. I just thank God because he has brought help to the girls. Before when the girl was having menses and she sits on a desk when she stands, she leaves stain behind. Even when she is at home, maybe it started abruptly on the way....so such things I do not see them anymore, she is clean most of the time. Even when we are together with her on the table, she is so comfortable to talk, she is very much comfortable, and I thank God very much for that. When she came with something like that [referring to mooncup] to use I agreed, and when she was given that thing she brought it to me immediately, I just ask her, "do you know how to use it?" She will share with me if she is given a new thing to use ” (P7, Oseno).

Interestingly, when parents from one school were asked what wishes they had for the future in relation to the study, they asked if the mooncup could also be given to parents. One parent exemplifies this by saying “we as parents we also have problems, they should also bring for us study as mothers, we are tired of blankets, we are longing for that mooncup. Let it be a study of older people, let mothers also to be in the study” (P9, Khadua). Not only parents, but also teachers had such responses. Of note is the male teachers who claimed to not be able to accurately answer the question of what they thought of the mooncup, because they did not have enough experience with it. Thus, they asked the training team if they could have a mooncup to bring to their wives and thus come back and report on their experiences. One such teacher said “[...] the male teachers should also be given some to take to their wives, and therefore their wives can tell them if it is good or it is not good [...]. So if you can give us this

thing, we will ask 'how are you fairing on with your mooncup'. [Our wives] can easily tell us, because most of them are learned today" (P3, Barkatado).

In addition to cultural challenges, some social challenges were mentioned by the girls. One girl commented on the fact that she is now being associated with the mooncup, and thus with menstruation, by her peers: "when you are going to the latrine some pupils do say that "okay the mooncup girl is going to the latrine" (P4, Wagwer). Another student mentioned this negative association, saying that peers disapprove of the cup. She said: "they say those girls who are using mooncup struggle, that the thing is bad, that is why they are not using it themselves. They say we are struggling to use the mooncup, it is better if we do not use it" (P1, Wagwer). In support of this statement, one teacher shared details of a bullying event related to the mooncup in a school: "last time I happened to be at Ulamba and the CDC vehicle was in and then the class that I was in just started ridiculing others that "mooncup people, get out! Get out!" so you know they did not feel well" (P4, Barkatado).

## 6 Discussion

The questions posed by girls during their trainings on the menstrual cup, are what the trainers consider to be frequently asked questions (FAQ), or 'just the usual questions'. This entails that the questions are expected, and simple to answer. Indeed, most questions are related to the practical aspect of inserting the cup and are simply clarifying questions. According to the above data, the main concerns are comfort and potential interference with day to day activities. This is in line with the studies mentioned in the literature in chapter four (Mason et al., 2015; Beksinska et al., 2015). In the feasibility study, women expressed their concerns regarding comfort but expressed their willingness to try it (Averbach et al., 2009). In the other study by Beksinska et al. (2009) the issue of comfort was actually a reason for some women to stop using their menstrual cups. For these latter women, the cup does not function properly and therefore does not meet the requirement for soundness of the technology. Nevertheless, in the present study, these worries are in turn quieted by the experiences of girls who have started using the cup. In their case, there were very few mentions of discomfort. The girls and parents who talked of discomfort in relation to the cup, clarified that this was mostly isolated to the beginning. Furthermore, girls were already experiencing discomfort in their MHM prior to the introduction of the cup, and there was no mention of the cup worsening this discomfort. As such it can be said that the cup is successful in facilitating the girls' MHM, based on their experiences, and thus meets the basic needs of sanitation. Moreover, should any discomfort be experienced, girls have the choice and agency to decide to stop using the cup. Unfortunately, this agency and related empowerment is quieted due to the limited alternatives provided in the girls' surroundings. This further links to the concept of power, and more specifically liberatory power (Brookfield, 2001). Yet, though girls are allowed to act how they wish, they are not able to do so due to circumstances beyond their control, and the power becomes repressive. This will be elaborated on later on in the discussion.

The soundness of the menstrual cup in performing as it is intended to, contributes to an enhanced sense of wellbeing amongst the girls, which has knock-on effects in terms of productivity and participation in activities. In this respect one can consider the freedom experienced by girls as empowering, as the girls have more concentration and energy to focus on their education and wellbeing rather than concerning themselves with potential leaking, smells and general shame. In doing so, a girl is able to focus on setting and obtaining future goals. Furthermore, girls are no longer inhibited from participating in recreational activities and interacting with their peers in a non-academic setting. When considering the definition of empowerment mentioned in chapter four, it is most important to note how girls experience a potential event themselves, rather than someone else determining their empowerment for them. As is evidenced in the results section, the frequent mentions of freedom, improved comfort and concentration allude to a sense of empowerment experienced by the girls themselves. The resulting enhancement of academic performance, will increase the likelihood of completing education and obtaining employment. Though it is an indirect consequence, employment is a basic needs requirement that supports the appropriateness of the cup.

Much like the girls who had already started using the mooncups, their parents and teachers positively evaluated the impact it has had. The ultimate goal of improving school attendance and promoting general well-being will likely be reached by introduction of the mooncup. Nevertheless, the introduction of the mooncup is not isolated to the girls' experiences alone. There are socio-cultural factors that should be gravely considered when judging the appropriateness of the menstrual cup for girls in Siaya County. In this respect, the issue of virginity is the most important. As stated in the results section, the implications of not bleeding on the wedding night are serious and would negatively impact the girls in many respects. Nevertheless, bleeding is a result of the tearing of the hymen, which is likely to tear during many common activities such as biking, riding on the back of a motorbike, and large amounts of physical exercise. Additionally, when the matter was discussed amongst the leaders and with colleagues, it appears that though the mentality still exists, its practice is becoming less prominent. Nevertheless, the matter of cultural sensitivity persists in the discussion of appropriateness of the menstrual cup. Though the cup does address and situate itself within the existing problems of MHM for girls in Siaya County, it does not necessarily situate itself within all the cultural, environmental, social, and historical structures that determine the behaviour and norms of the target population (Rasnicow et al., 1998).

Furthermore the issue of power is of value here, as the trainings and the introduction of the cup itself are controlled by Western institutions whose perceptions of matters such as virginity differ greatly from those of the target population. Though the cup, in theory, appears to be the ideal solution, this may not be the case ideologically or practically. This realization, though frustrating, deserves serious consideration for the future of planning and implementation of interventions that facilitate MHM for girls in similar settings to the ones in the CCG trial. Nevertheless, as one of the MoE representatives stated during one of the Leader's Orientation Meetings, nobody was forced into the trial. Details of the trial was shared, and individuals are able to weigh, according to personal preferences, the pros with the cons. As such, those who have more traditional values may opt not to use the cup, and those who do not place that much value on the issue of virginity can opt to use the cup. This also ties in with the concepts of power and empowerment (Brookfield, 2001; Mosedale, 2005). In this case, however, the issue of power is complicated due to the age of the girls and the need for parental consent. According to Mosedale (2005), the ultimate decision-making power should lie with the individual whose empowerment is in question, but in the case of the present study, parent's have a greater share in this power. Notwithstanding, it is important to provide some attention to the social difficulties that girls encountered in their use of the cup. Many of the girls and teacher shared that the girls in the trial are known for their participation in the trial and thus their association with the menstrual cup and menstruation in general. This often results in some forms of bullying of and shame within the girls in the trial. This was made worse by the poor privacy of the latrines in schools, which meant that some girls would be 'caught' with their mooncup. As the literature in the introduction section revealed, the lack of proper education on menstruation makes that it is already experienced as shameful and taboo (McMahon et al., 2011; Bharadwaj & Patkar, 2004; Sommer & Sahin, 2013; Jewitt & Ryley, 2014). Furthermore, though it might be embarrassing that pupils do not knock on the latrine doors, this problem is not unique to the cup. To settle this issue, one would have to research whether the

introduction of the mooncup worsened the already existing shame and embarrassment girls might experience during puberty.

Finally, the issue raised by one of the nurses concerning the WASH reality girls face in their homes and schools is also important. Even if the girls succeed in acquiring water at home, the chance exists that this water is contaminated with bacteria that will consequently cause discomfort and infection. Though results from the preliminary study demonstrate that rates of vaginal infections were high before mooncup introduction, and that these figures did decrease following its introduction, it does not excuse the fact that the mooncup might also place the girls at risk for these infections (CDC Presentation LOM, 2017). As is the case with the issue of comfort, it is essential that the cup does not cause more harm than the baseline of what the girls were using prior to the introduction of the cup. Furthermore, the issue of sustainability in terms of long term effects also weighs heavily on determining the appropriateness of the menstrual cup. Even though it is cost effective in the long run, it is not a viable alternative for the majority of Kenyans who would thus rely on it being donated. Additionally, the mooncup is not locally produced nor does it directly generate any form of employment for the local population that would benefit from them. Those who would benefit from it the most, will not be able to afford it. In turn, when the study ends and the girls outgrow or out-use their current mooncup, the majority will be forced to resort to their usual practices. Finally, it is highly unlikely that menstrual cups will become more widely available in Kenya, and that it will be affordable to the majority of the population. Though the study team plan to make suggestions and recommendations to the Kenyan government based on their findings, it is unlikely that MHM and the introduction or subsidization of menstrual cups will become an immediate priority.

Following the above discussion of the results, it is fruitful to return to the set out research (sub) questions. The results section was divided into perspectives from girls, their teachers, parents and local leaders. This was done with the multi-level approach in mind in addition to the sub question regarding whether the concerns of the various stakeholders align or conflict. Though at first glance the concerns seem to align in that all stakeholders are working towards improving the MHM of the girls, there is also a degree of conflict when it comes to the concerns of the research team and that of the other stakeholders. Indeed, the study team's main priority is to investigate whether menstrual cups are an adequate response to the girls' MHM needs, there is also a concern regarding their own academic and practical performance within their field of work and expertise. It is here that the main criticism and point of discussion emerges. One can consider the introduction of mooncups as a tool for MHM in developing countries a practice of alternative development. This paradigm within the development science and practice is characterized by a shift away from focusing on economic growth towards a more "people-centered definition of development". Considering that appropriate technology is defined as "any object, process, idea, or practice that enhances human fulfillment through satisfaction of human needs" (Hazeltine, 2003: 3), one can say that the development and implementation of appropriate technologies are a form of alternative development. Indeed, in terms of the characteristics for appropriate technology discerned by Murphy et al. (2009), the mooncup can be considered an appropriate technology in theory, but in practice this may not entirely be the case. It is quite easy to say

that the mooncup alleviates much of the problematization related to MHM encountered by girls in Siaya County. Noble as it might be to conduct such a study and to want to improve the MHM situation of girls in developing countries, it might be the case that this study does more harm than it does good.

As mentioned, both in the results of this study as well as in the studies mentioned in the literature review, women in development countries encounter difficulties with regards to the affordability and access to adequate MHM products. Additionally, many of the studies mentioned in the literature and even the present study conclude that menstrual cups are a seemingly ideal solution to the problems women face. What all these studies have in common, however, is that cups are provided to the research participants. Women are followed for some time, and after a specific, rather short, time span the study ends with positive results for both the research team and the majority of women involved. Once the study team is removed from the study area, women have a cup for as long as it lasts. There is a chance women get pregnant and thus require a larger sized cup, that the cup gets lost or that it falls into a latrine and thus cannot be used anymore. Even if these events do not occur, the cup will 'expire' after ten years and thus women will require a new one. This places women back in the same situation they were in when they were selected for the study, only now they have experience with the menstrual cup. It is likely that many, if not most, of the women will be unable to afford, or even access, a new menstrual cup and thus must revert back to what they were practicing before. Furthermore, in the present study, many of the women that were aware of the study but not enrolled in the trial displayed jealousy of the participants of the trial. This is because they were aware of the benefits of the cup, and were desperate for a similar tool to manage their menstrual cycles. The result is that, after the trial, women have been made aware of their 'poor' situation and their need for help, become dependent on an outside party to provide a solution, and eventually are in the same 'poor' situation with an additional awareness of how it could be.

Though alternative development emerged after the apparent lack of success of, or disillusionment with, what was once considered 'mainstream development', one can be critical whether this so-called people-centred approach is indeed an improvement of the previous 'paradigm' (Pieterse, 1998; Matthews, 2004). If the good done in the CCG trial only temporarily does more good than harm, should it have been conducted at all? Questions and critiques such as these belong to the post-development school of thought, who harshly criticize the science and practice of 'development'. Sally Matthews (2004) refers to Wolfgang Sachs' metaphor of development as "a lighthouse which supposedly inspires nations, but which now 'shows cracks and is starting to crumble'" (Matthews, 2004: 373; Sachs, 1992: 1), to which opposers of this way of thinking say that "even a crumbling, malfunctioning lighthouse is better than having no guiding light at all!" (Matthews, 2004: 373). In reference to the study presented in this thesis, it can be said that the provision of any lighthouse, functioning or not, by an outside, Western, party at all is problematic. The provision of the lighthouse reflects the conviction that those who receive the lighthouse are lacking something, and subsequently create this awareness within the minds of those who receive the lighthouse. Thus, when the lighthouse crumbles and ceases to function, the receiving population internalizes this loss and experience it as a hindrance. Ultimately, one can argue that they are worse off after the introduction of the lighthouse and its demise than they were not knowing about

the lighthouse at all. In the post-development argument, there is often the proposal of subsequent 'alternatives to development', though the actual proposals are never concretely identified (Ibid). In Matthew's paper, she wishes to argue why this critical perspective is relevant to the African continent and, in turn, how the African context can contribute to the perspective and the proposals for such illusive alternatives (Ibid).

The observations and experiences related to the study presented in the present thesis are also relevant to this discussion. Indeed, the notion that development should be more people-centered is a relevant one. After all, there is no denying that there are issues in the world that are unnecessary and that require some form of intervention. Yet, it is wrong to believe that, mostly, Western institutions are capable of instilling any positive change. Thus, a 'solution' ought not to be people-centered in that they are not related to mass production and consumption per se, but rather that it places the people who supposedly encounter issues in the center. This should not only be in the final stage of executing a 'solution', but in the entire theory of change process, from the identification of a problem to coming up with solutions to actual implementation of solutions. Indeed, there are problems here, too. The process of problematizing a situation is often also done by Western actors, when the people in question might not be aware that a certain situation is problematic. Of course, this is a speculative statement. In the present CCG trial, there were genuine expressions of discomfort and desperation with regards to the question of how one should deal with her menstruation. In order to make a solution, like that proposed in the CCG trial, people centered, the process should start by talking to and engaging with the girls whose problem is to be addressed. The girls should be the ones detailing their issues, and make suggestions towards what they might believe to be a good solution. Rather, in this situation, institutions wanted to test whether menstrual cups would be a good solution for the MHM of girls in Siaya County and subsequently imposed this. Certainly, community leaders were communicated with and informed of the study, and their approval was essential. Still, there is a display of power structures here. Initially this was demonstrated through the ability for the CDC, LSTM and KEMRI to formulate a study for girls in Siaya county. Secondly, this is demonstrated in the fact that representatives from MoE and MoH, many of them men, were those most communicated with. This is problematic in that menstruation is something that women undergo, and that it is very personal. The fact that so many actors think they know what is best for this group of girls, and that, though doing it 'for' the girls, it appears that girls have little say in the proceedings of the study, is quite unusual.

In light of the 'alternatives' to development as described by Matthews, she states that she "[believes] that a consideration of Africa by those adopting a post-development perspective could be valuable for the articulation of alternatives to development. The way in which African worldviews and lifestyles differ from those of Western and Westernised regions, and the diversity of worldviews and lifestyles in Africa could provide useful insights for those concerned with describing such alternatives" (Matthews, 2004: 374). Indeed, the goal of the present argument is not to reject development in its entirety as is common with the post-development school of thought. It is also not to say that those who 'practice' development have negative intentions. It is, however, intended to argue for a redefining of what it means for development science and practice to be 'people centered'. In short, the people who are at the center of

a particular intervention should be at the center throughout the entire process from design to implementation. Mutual communication, interest and respect should be at the heart of any interactions, and the interest of the people 'targeted' by an intervention should be of most interest.



## 7 Reflection

When the fieldwork period started on February 7th, the progress of the trial looked promising. Preparations were in place for the leader's orientation meetings, after which the trainings could start. During this time I was communicating with a researcher from the LSTM, who seemed very positive about my participation in the trial, my plan to interview participants, sit in on their FGDs and was hopeful that I could even become a trainer. Nevertheless, four weeks into the fieldwork period, it became clear that I would not be able to do any of those things, and that the trials would only begin in the second week of March. This evidently set me back significantly, and forced me to come up with an alternative. The solution was to interview the trainers, write their reports for them with the content of the interviews, and to have an FGD with them to validate the findings and to discuss issues (i.e. cultural factors) that came up during the leader's orientation meetings. Of course, this means that much information from the trainings was missed between the trainings, the trainer's narrations of the trainings, and the collection of these narrations. This was, however, somewhat countered by the provision of primary data stemming immediately from the girls during the pilot study. There was some consideration for interviewing women around Kisumu (related to co workers, people who work in places often frequented and know relatively well through that) and telling them about the menstrual cup and then seeing their reactions. This was voted against eventually because of ethical considerations. Perhaps the women would become excited about the cup and want to buy one, or somehow think that I would give them one, and this would lead to disappointment. Because I actively participate in SWAP's CCG team, my relationship with the host organization, colleagues and respondents is quite good. There is a mutual appreciation of the collaborative relationship.

My positionality as a white, young, female researcher in the cultural context in Kisumu has greatly influenced my research. Mostly, it is the reason that I was unable to carry out my research as intended, because there was a fear my presence with distract girls or disturb trainings. Despite this, my positionality has not affected my relations within the host organization in the sense that I am not treated differently simply for being white, young and/or female. This aided in the willingness of the trainers to sit with me and participate in the interviews, and thus provided me with as much access to the trainings as realistically possible.

The main challenges have been the time frame, as the girls' trainings only started on March 8th, and there is a two week period in the last week of March and first week of April where girls have exams and holidays and thus not as many trainings take place. Furthermore, it appears that the trainers are experiencing some fatigue when it comes to the interviews. This means that they provide relatively few details. This is likely due to the fact that the issues encountered during the trainings are very similar in each school, and reporting them becomes seemingly repetitive. This is remedied by simply asking more questions that lead to more detailed responses. Additionally, one of the trainers, who quit in the beginning of April, was not significantly helpful. When asked for a report on the training the day before,

she did not give details besides how many girls were trained and how many were missing (and why) and towards the end simply said the girls did not ask any questions during the trainings (which is highly unlikely, especially when the cup is involved). In the beginning probing helped, but in the week before she left hardly any input was provided. This led to a considerable lack of detail in the interviews conducted with her. Fortunately, two trainers attended each training session. In the event where this particular trainer did not want to engage in an interview, the trainer who went with her was contacted. This was not always possible, as that trainer was often in the field, but in two cases the interviews could be conducted over the phone.

Finally, and perhaps most importantly, is the reflection on the misaligned goals of the trial and my personal goals for the thesis. The CCG trial is not one focused on development per se, but more inclined towards biomedical and scientific outcomes. Nevertheless, the majority of the critiques set out in this thesis are centered around appropriate technology within the development studies sector. Evidently, being an appropriate technology was not an explicit goal set out by SWAP, KEMRI, CDC and LSTM, and could thus explain in part the relatively harsh criticisms discussed in this thesis. Should the trial be conducted with an explicit focus on social, economic and national development, the interests of both myself and the research team would likely have been more aligned and the collaboration been more fruitful and ultimately achieving more depth during the data collection process.

## 8 Conclusion

The present research set out to assess whether the menstrual cup can be considered an appropriate technology for girls in developing countries. In developing countries, including Kenya, menstruation is amongst the leading causes for girls to miss school due to a lack in access to and affordability of products to manage this. Furthermore, to be able to afford sanitary products, many girls engage in risky sexual behaviour in return for money. To date, few studies have investigated which methods and techniques provide relief to girls in developing countries struggling to manage their menstrual cycles. This is particularly true in the field of international development studies. The importance of this topic is seemingly underestimated, as women represent roughly half of the global population and their participation in local economies is essential to a nation's growth and development (Malhotra & Schuler, 2005). That something as natural as menstruation is one, of many, inhibiting factors is worrisome and deserves greater attention. This section will provide answers to the sub questions, and ultimately the main research question, detailed in the second chapter of this thesis.

As was stated in chapter 3, this thesis comprised of an underlying multi/level approach. Several levels, and thus stakeholders, were identified, such as the girls, the household, the community, the trial staff, and local county government. The main concern for everyone was that menstruation is withholding girls from receiving sufficient education, in terms of absenteeism but also as a result of what girls do to obtain money to deal with their menstruations, and that there was genuine interest as to whether menstrual cups would provide an adequate solution to this. For the girls themselves, they wanted to diminish the stress they experienced during their menstruation and be able to focus their attention to playing with their friends and attending school. Similarly, parents or guardians wanted their daughters to attend school and to be relieved of the financial burden of providing their daughters sufficient sanitary products. The community, trial staff and local county government also wanted the girls in their midst to reach their full potential through education, and to stop issues such as pregnancies and the spread of HIV that were resulting of poor MHM conditions. Finally, it can be said that the CDC, LSTM, KEMRI had a certain degree of self interest in obtaining significant results that would lead to several publications. For the greater part, these concerns all align. Perhaps there were minor conflicts in terms of the trial staff's concerns with testing the significance of the mooncup on various factors and the social and cultural concerns of the girls, their families and the community. Additionally, there is a conflict that extends beyond the trial between the trial staff's concerns and that of the girls. This is in terms of the long term impact of the study. Though it may seem that the mooncup is an appropriate tool for the girls to manage their menstruation, it is not a long term sustainable solution due to low levels of accessibility and affordability. Having introduced these cups to the girls regardless of the lack of accessibility and affordability might in the long run do more harm to the girls than good, whereas this issue does not impact the results obtained by the team within the three year period. This has, however, much to do with the fact that the CCG is a research trial, and is not part of a broader WASH and/or (alternative) development project.

It appears that the majority of the challenges in the introduction of the mooncup were experienced by the research team prior to the commencement of the trial, in terms of receiving (ethical) approval and the approval of the MoH and MoE. Similarly, once the cup was introduced, the main concerns with the girls, their families, and the community leaders were with comfort and interference with daily activities such as using the bathroom, biking, running, fetching water and so forth. Virginity was also a recurring concern, particularly with community leaders, but this was brought back to a decision for individual households to make.

The girls who had already started using the cup reported largely positive experiences with the cup. Despite initial fears with regards to the size of the cup and a myriad questions about how to use it, girls communicated that the cup enhanced their lives. According to them, the cup is comfortable, easy to use, reliable, and therefore takes away the stress they were previously experiencing, allowing them to optimally concentrate on their education. A minority reported discomfort with activities such as biking, but this rarely led to a refusal to use the cup. This is likely because there simply are very few alternatives.

The design of the cup allows for its ease of use, though it might take some time for individuals to grow accustomed to it. Personal factors, such as fear and discomfort, might inhibit the use of the cup. Nevertheless this did not prove to be the case. Social and cultural factors also appeared to have minimal impact on the decision to use the cup. Few girls reported worries that the cup would lead to gossip and bullying, but not to the extent that they would stop using the cup. Parents and community leaders expressed concern that the cup might interfere with the girls' virginities, but were also aware of the dire necessity for a MHM solution in addition to the risky sexual behaviour the girls were displaying to manage their menstrual cycles prior to the introduction of the cup. Those families that were seriously concerned with this, were able to share this and opt out of the trial. This is essential for the secondary criteria for appropriateness, namely cultural sensitivity and empowerment. Finally, some environmental factors also inhibited the easy use of the cup. This was mostly due to the conditions of latrines, the lack of privacy, the lack of running and/or safe water and the lack of soap at school and/or in the home. Though coping mechanisms are often established for these obstacles, they also place the girl at a certain degree of risk for infection. Nevertheless, the findings from the pilot study suggest that there is a significant decrease in vaginal infections when comparing what girls were using before the cup and once the cup was introduced.

Following the discussion, the main question "To what extent is the mooncup an appropriate technology for the menstrual hygiene management of girls in Siaya county, Kenya?" will be concluded with tentative conviction. In accordance to the criteria set out by Murphy et al., (2009) it can be said that the mooncup is an appropriate technology for the MHM of girls in Siaya County. The mooncup itself provides girls with a comfortable, reliable and easy tool to manage their menstruation. The CCG trial as a practice of alternative development is slightly more problematic, as there is no regard for the implications of the trial in the far future. Though it does raise awareness with the government of Kenya towards MHM, it is

unlikely that it will lead to a national-level intervention with menstrual cups. At the end of this research project, there is promising news from Kenya. On June 22, 2017, the government of Kenya amended their education act stating that “free, sufficient, and quality sanitary towels” are to be provided to all girls enrolled and attending schools in Kenya, in addition to the provision of adequate means to dispose of these materials (BBC, 2017: 1).

## **8.1 Recommendations**

Recommendations can be made on several levels. Firstly, the topic of MHM deserves more attention within the many academic disciplines to which it is relevant, including within international development studies. With this comes the fact that MHM is a multifaceted problem and thus requires research and practices that considers this. MHM is not an isolated issue, but rather is situated at the intersection of WASH, infrastructure, education, gender equality and women’s rights related fields. It is essential that experts from these fields come together and address the issues related to MHM faced by women in developing countries around the world. As such, an isolated trial is likely not sufficient, and will potentially have a greater, more sustainable, effect when embedded within a larger development programme. Nevertheless, it is important that any effort to address these problems should commence at the level of the population that is to be targeted by a particular intervention or study. Ultimately, an intervention should be in the best interest of these people, and facilitated by any outside party, and not the other way around as often turns out to be the case in research projects. Furthermore, this will reduce unforeseen socio-cultural challenges such as local conceptualizations, associations and understandings of certain topics. Finally, researchers investigating the impact of a particular intervention should remain mindful of the impact of their presence and intervention beyond the timeline allotted to the research project.

## 9 Bibliography

Averbach, S., Sahin-Hodoglugil, N., Musara, P., Chipato, T., & van der Straten, A. (2009). Duet® for menstrual protection: a feasibility study in Zimbabwe. *Contraception*, 79(6), 463-468.

BBC (2017). Kenya's schoolgirls to get free sanitary pads from government.  
<http://www.bbc.com/news/world-africa-40365691> Date accessed: June 27, 2017.

Beksinska, M. E., Smit, J., Greener, R., Todd, C. S., Lee, M. L. T., Maphumulo, V., & Hoffmann, V. (2015). Acceptability and performance of the menstrual cup in South Africa: A randomized crossover trial comparing the menstrual cup to tampons or sanitary pads. *Journal of Women's Health*, 24(2), 151-158.

Bharadwaj, S., & Patkar, A. (2004). Menstrual hygiene and management in developing countries: Taking stock. *Junction Social*, 3(6).

Brookfield, S. (2001). Unmasking power: Foucault and adult learning. *The Canadian Journal for the Study of Adult Education*, 15(1), 1.

CIA (2016). The World Factbook: Kenya.  
<https://www.cia.gov/library/publications/the-world-factbook/geos/ke.html>. Date accessed: January 4, 2017.

Cups or Cash Research Protocol (2016).

Daily Nation (2011). Fast Facts: Siaya County at a Glance.  
<http://www.nation.co.ke/counties/Siaya/Siaya-county-at-a-glance-/1183322-1177194-i79b61/index.html>. Date Accessed: March 3, 2017.

Fewtrell, L., Kaufmann, R. B., Kay, D., Enanoria, W., Haller, L., & Colford, J. M. (2005). Water, sanitation, and hygiene interventions to reduce diarrhoea in less developed countries: a systematic review and meta-analysis. *The Lancet infectious diseases*, 5(1), 42-52.

Gertler, P. (2004). Do conditional cash transfers improve child health? Evidence from PROGRESA's control randomized experiment. *The American Economic Review*, 94(2), 336-341.

Greene, L. E., Freeman, M. C., Akoko, D., Saboori, S., Moe, C., & Rheingans, R. (2012). Impact of a school-based hygiene promotion and sanitation intervention on pupil hand contamination in Western

- Kenya: a cluster randomized trial. *The American journal of tropical medicine and hygiene*, 87(3), 385-393.
- Jackson, C., & Pearson, R. (Eds.). (2005). *Feminist visions of development: gender analysis and policy*. Routledge.
- Jewitt, S., & Ryley, H. (2014). It's a girl thing: Menstruation, school attendance, spatial mobility and wider gender inequalities in Kenya. *Geoforum*, 56, 137-147.
- Lagarde, M., Haines, A., & Palmer, N. (2007). Conditional cash transfers for improving uptake of health interventions in low-and middle-income countries: a systematic review. *Jama*, 298(16), 1900-1910.
- Lahariya, C. (2009). Cash incentives for institutional delivery: linking with antenatal and postnatal care may ensure 'continuum of care' in India. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*, 34(1), 15.
- Link, B. G., & Phelan, J. C. (2001). Conceptualizing stigma. *Annual review of Sociology*, 27(1), 363-385.
- Malhotra, A., & Schuler, S. R. (2005). Women's empowerment as a variable in international development. *Measuring empowerment: Cross-disciplinary perspectives*, 71-88.
- Mason, L., Laserson, K., Oruko, K., Nyothach, E., Alexander, K., Odhiambo, F., ... & Omoto, J. (2015). Adolescent schoolgirls' experiences of menstrual cups and pads in rural western Kenya: a qualitative study. *Waterlines*, 34(1), 15-30.
- Matthews, S. (2004). Post-development theory and the question of alternatives: a view from Africa. *Third world quarterly*, 25(2), 373-384.
- Montgomery, M. A., & Elimelech, M. (2007). Water and sanitation in developing countries: including health in the equation. *Environmental Science & Technology*, 41(1), 17-24.
- Mooncup Website (2017). <http://www.mooncup.co.uk/>. Date accessed: March 4, 2017.
- Mosedale, S. (2005). Assessing women's empowerment: towards a conceptual framework. *Journal of international development*, 17(2), 243-257.
- Murphy, H. M., McBean, E. A., & Farahbakhsh, K. (2009). Appropriate technology—A comprehensive approach for water and sanitation in the developing world. *Technology in Society*, 31(2), 158-167.
- Onyango-Ouma, W., Aagaard-Hansen, J., & Jensen, B. B. (2005). The potential of school children as health change agents in rural western Kenya. *Social science & medicine*, 61(8), 1711-1722.

- O'reilly, C. E., Freeman, M. C., Ravani, M., Migele, J., Mwaki, A., Ayalo, M., ... & Quick, R. (2008). The impact of a school-based safe water and hygiene programme on knowledge and practices of students and their parents: Nyanza Province, western Kenya, 2006. *Epidemiology and Infection*, 136(01), 80-91.
- Oster, E., & Thornton, R. (2009). *Determinants of technology adoption: Private value and peer effects in menstrual cup take-up* (No. w14828). National Bureau of Economic Research.
- Oster, E., & Thornton, R. (2011). Menstruation, sanitary products, and school attendance: Evidence from a randomized evaluation. *American Economic Journal: Applied Economics*, 3(1), 91-100.
- Oster, E., & Thornton, R. (2012). Determinants Of Technology Adoption: Peer Effects In Menstrual Cup Take-Up. *Journal of the European Economic Association*, 10(6), 1263-1293.
- Parker, R., & Aggleton, P. (2003). HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action. *Social science & medicine*, 57(1), 13-24.
- Pieterse, J. N. (1998). My paradigm or yours? Alternative development, post-development, reflexive development. *Development and change*, 29(2), 343-373.
- Prüss, A., Kay, D., Fewtrell, L., & Bartram, J. (2002). Estimating the burden of disease from water, sanitation, and hygiene at a global level. *Environmental health perspectives*, 110(5), 537-542.
- Resnicow, K., Baranowski, T., Ahluwalia, J. S., & Braithwaite, R. L. (1998). Cultural sensitivity in public health: defined and demystified. *Ethnicity & disease*, 9(1), 10-21.
- Rutenberg, N., & Watkins, S. C. (1997). The buzz outside the clinics: conversations and contraception in Nyanza Province, Kenya. *Studies in family planning*, 290-307.
- Sachs, W. (1992). *Development Dictionary, The: A Guide to Knowledge as Power*. Zed Books.
- Schumacher, E. F. (1973). *Small is beautiful* (Vol. 90). New York: Harper & Row.
- Sommer, M. (2010). Putting menstrual hygiene management on to the school water and sanitation agenda. *Waterlines*, 29(4), 268-278.
- Sommer, M., & Sahin, M. (2013). Overcoming the taboo: advancing the global agenda for menstrual hygiene management for schoolgirls. *American journal of public health*, 103(9), 1556-1559.
- Sumpter, C., & Torondel, B. (2013). A systematic review of the health and social effects of menstrual hygiene management. *PloS one*, 8(4), e62004.



UNDP (2016). Human Development Reports: Kenya. <http://hdr.undp.org/en/countries/profiles/KEN>.  
Date accessed: January 6, 2017.

Van der Geest, S., Speckmann, J. D., & Streefland, P. H. (1990). Primary health care in a multi-level perspective: towards a research agenda. *Social Science & Medicine*, 30(9), 1025-1034.

# 10 Appendix

## Appendix I: Trainer Interview Template

Date of Training:

Name of School:

Arm:

Trainers:

Focal Teacher (include phone #):

Expected Number of Students:

Actual Number of Students Trained:

Reasons for Students Missing Training:

What went well:

What did not go well:

What seemed to be the girls' main concerns (i.e. What questions did they ask?):

Any other remarks that should be noted:

## Appendix II: FGD Interview Guide

(ask for permission to record, ensure anonymity of person and their responses, ensure person that he/she is not obliged to answer any question and may opt to not answer any question, and that he/she may leave at any point without providing a reason)

1. Introduction: Who am I, what do I do, what am I doing in Kenya/with SWAP, what is the purpose of the interview, should take around 30 minutes depending on the length of answers/discussion. Then, who is he/she, what does he/she do, what is his/her role in the CCG trial? Ask if there are any questions before proceeding with the interview questions.
2. Could you please provide me with an explanation of what the CCG trial study is?
3. What issue(s) does the CCG trial study aim to address?
4. Which factors did you have to consider while designing and preparing for the study/trainings/implementation? (i.e. Cultural, political, infrastructural etc.)
5. What is your experience with the proceedings of this trial study thus far? What challenges have you faced (i.e. The delay for being able to start the trial)? What is going well? What are your expectations for the upcoming three years? (can be both logistically as well as for the girls/families/communities and the success of the trial)
6. As I have mentioned in the introduction, I am interested in the concept of appropriate technology, and I would like to try and assess whether the mooncup can be considered an appropriate technology for the menstrual hygiene management of the girls enrolled in the trial. I will provide you with some definitions and characteristics, and we can discuss your thoughts on them if that's okay with you.
  - "any object, process, idea, or practice that enhances human fulfillment through satisfaction of human needs" (Hazeltine, 2003: 3)
  - An appropriate technology must be compatible with local cultural and economic conditions (i.e. Through the use of human, material, cultural resources)
  - An appropriate technology must be self sustaining, cause little cultural disruption, and ensure that it will improve the welfare of the target population.
7. I have visited the leaders orientation meetings at Ugunja and Ugenya, and made some observations of the things that were said and asked there. I would like to share these with you and discuss them if that is okay.
  - Though they were invited, no religious & other traditional leaders were present at the meetings. What could be some possible reasons for this?
  - Girls are to boil the cup after menstruation. They are evidently to do this in a container other than the one their family is using at that time. Do you foresee any issues here with regards to shame, lack of water (and family not being okay with using it for this), practicalities of boiling water (links to previous two: it might take a long time to boil the water and it might draw attention from relatives who don't agree with what she is doing or who enquire as to what she is doing)?

- The issue of virginity was brought up. After explaining that there are several ways in which one can think about virginity (the tearing of the hymen, the first time engaging in intercourse), and that the cup might interfere with the tearing of the hymen but evidently not with the practice of intercourse, the man who posed the question clarified that what was important to him/his culture was the tearing of the hymen.
  - If the WASH facilities at school are inadequate, it will be 1) difficult for a girl to wash her hands prior to entering the stall to empty her cup 2) difficult to find a private space to that she can close/lock when changing the cup. The solution to the soap question was that soap would be provided to schools who could not provide this consistently. The solution to the water question was that members from the trial would discuss the matter with the school to come up with potential solutions, as well as teach girls coping mechanisms (i.e. Bring a container with water from home). Many people asked the question 'what about our boys?' in addition to 'what if the girl just doesn't have this water at her disposal'?
  - The 'usual practices' of girls is the reason this trial is being carried out in the first place. Do you think there are any ethical implications for having a 'usual practices' arm? If yes/no, why?
8. What is the role of the MoH in this trial study? To what extent have they been involved in the planning/approval process? To what extent are they involved in the current daily/weekly proceedings of the study?

## Appendix III: Leader's Orientation Meeting Questions

(These are questions that representatives from the MoH, MoE and nurses in the county asked following SWAP's presentation of the CCG trial)

Day 1 (14/2/2017): Ugenya Sub-County (24 attendees)

1. How to interpret graph: lower STI with cups, does that mean they have less sex? Does the cup protect them from STIs? How to read this?
2. What happens with the HIV tests conducted? If a girl turns out to be positive, how will she find out? (the results of the clinical tests will be shared with the clinic nearest to the school, and girls can go get their results there)
3. Sustainability beyond the trial: is there an exit strategy? What happens when the trial is over and the girls who received cash don't have this source of income anymore? Concern is that it might lead to a large gap in money which will result in risky (sexual) behaviour (the hope is that girls will have been sufficiently educated to know what to do with their money etc).
4. What to do if the WASH facilities in the school is insufficient? For example: you need to wash your hands with water and soap before emptying the cup. Also, you need privacy to remove/re-insert the cup - what if there is no door? Or what if you have to hold the door with one hand etc?
5. How much does a cup cost? (response: mooncup = 3000 shillings/30 dollars. Ruby cup is about 1500 shillings/15 dollars, and if subsidised can be found for around 800 shillings/8 dollars)
6. Why are the results of the medical tests not given at/by the same counselor, rather than at this potentially unknown facility/doctor? (response: not known if counselor will understand medically what the results imply, and girls will need to get medication anyway if there is some positive result, so the counselor can guide them on that whole process)
7. A cup lasts 10 years when all factors remain constant - but generally that is not the case in rural areas in Kenya (in schools w/o (consistent) water/soap) (response: there are coping mechanisms i.e. Girls take water with them from home. All girls are given some basic training on this)
8. Privacy - even if you have water & private latrine, you need to walk out to wash the cup or something which might again contaminate hands? (response: the goal is to wash hands with water and soap prior to entering the toilet. The girl can simply empty the cup and re-insert it without needed to wash it, because it is considered to contain fluids from her own body that will not 'contaminate' her)
9. What is a girl allergic to silicon? (response: so far nobody has reported that)
10. What are the girls in the cup & cash arm expected to spend their money on? (Response: books, transport, save it etc)
11. What about virginity? (response: virginity could either mean the hymen or the actual act of intercourse. The hymen might break, but they consider virginity to be first sexual intercourse, so

it should not affect the virginity. The man who asked the question explained that in Kenya, it is the breaking of the hymen that is considered when talking about virginity, presumably the presence of blood during this event)

Day 2 (16/2/2017): Ugunja Sub-County (25 attendees)

1. After the research period, they will make recommendations etc but how do they make it available to all? Will the Chinese bring it to the market? Will they (research team) make them available to the market? Sustainability after study period (b/c he thinks that cups will be accepted by the girls and should therefore be available to all)
2. Why not in primary schools? Because this is the age that girls start to go through puberty and that is exactly when parents shy away from teaching their kids (response: pilot was in primary school, wanted to roll it out on a larger scale and see what it would do in secondary schools)
3. Can it leak? (there are apparently some tiny holes) (response: it can technically leak if it is full and not changed)
4. Is it difficult to use?
5. Will the girls want to share? (logic: girls menstruate at different times so if one is finished menstruating she can clean it thoroughly and share it) (response: we will tell them explicitly that they can't, that it is 1 cup per girl)
6. Interpretation of graphs
7. WASH facilities at school are not good - how does that work with the cup? (Response: SWAP must talk to school to come up with a coping mechanism for the girls. **!!What about the boys??**)
8. Why do they give money to girls that don't have a cup? (response: in the hope that they will spend it on menstrual hygiene products and not sell their bodies or ask their boyfriends or share etc for pads)
9. What happens if one is damaged (for example: what if a girl accidentally drops it in the latrine or on the floor? This is very dirty) (response: if it is damaged the girls must return it to the designated teacher and she will receive a new one)

Day 3 (28/2/2017): Gem Sub-County (30 attendees)

1. How many cups per girl?
2. Why only one cup?
3. What are the indicators for measuring the quality of life?
4. What are the implications for virginity (question asked twice, once by Muslim leader and once by MoH rep)
5. Sustainability during and beyond the trial, and what about water supply?
6. Where to buy the cup, and how much does it cost?
7. What is the texture of the cup? (worry about comfort, especially if nothing has been inserted before)
8. Question about girls' acceptability. Person used the example of family planning methods such as IUD and female condom, how those are readily available (due to the issue of lack of family planning) but used very infrequently despite the demand for them.

9. Are these girls the first in the country to use them or have there been other studies/are they sold anywhere?

Day 4 (2/3/2017): Alego Sub-County (15 attendees)

1. How does it work with the two different cup sizes?
2. What about the virginity?
3. How does it work with heavy and light flows?
4. How often are you supposed to change it?
5. What if girls are afraid to use it because they are cautioned by the community? Maybe the teachers have committed to the study already and force the girls?
6. Risk of infection? What if it stays in for a whole day because a girl cannot go and change?
7. What about primary school girls?
8. What about privacy and hygiene when changing?
9. Why are you only teaching the girls [and not the boys]?
10. What about after 10 years? Girls probably cannot afford a new one, so then what?

## Appendix IV: Instructions on Mooncup Box<sup>5</sup>



<sup>5</sup> <http://www.caring-cosmetics.com/2014/06/the-mooncup-menstrual-cup-first-time.html>