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Sanitary Pad Acceptability and Sustainability Study

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The Rapid Promise of Girls' Education

Retaining girls in school through the secondary level is now understood to have far-reaching effects on national wellbeing and prosperity for developing nations. Many of the benefits effected by increased education for girls are related to the first years of sexual maturity—for instance, fewer early pregnancies, lower HIV transmission and reduced infant mortality—and thus could be expected to accrue within only a few years of a successful intervention. This promise of rapid impact on a wide range of important development factors should encourage the international aid community to look at innovations that could be introduced quickly—even temporarily—rather than sacrifice the opportunity to wait for longer term measures, such as improving infrastructure or changing cultural attitudes.

Sanitary Pads

We believe that providing better sanitary care and puberty education for poor schoolgirls is one intervention that might provide rapid effects with long-lasting positive consequences and thus should be considered seriously by policy-makers. Our own work in Ghana has already shown the possibility for free disposable pads and education about menstruation to improve school attendance, thus potentially improving retention.¹ Currently, we are conducting a long term, large sample trial in Uganda to further demonstrate the expected effects.²

The Environment

We frequently hear public concerns, however, about the use of disposable pads for this purpose. Usually, the worries expressed focus on the potential damage to the environment and the possible economic windfall for foreign pads manufacturers. Since continued high fertility, such as one sees in countries like Uganda, is surely a significant environmental threat, we believe that the environmental impact of pads disposal should be weighed against the potential for the pads to help girls delay child bearing by improving their ability to keep puberty private. And, as we will discuss below, we fear that the alternatives usually suggested—such as cloth pads and menstrual cups—show naiveté about the circumstances in which such interventions are needed.

Our Work

As we have continued to develop our research into this issue, we decided to further investigate alternatives to disposable pads to find out how they perform in practice and whether they are acceptable to the girls. This report describes the results of a six-month test of three different designs of cloth pad, a papyrus pad, and a private incinerator for disposal of pads.

Attitudes and Agency

A Complex Problem

After years studying this problem in sub-Saharan Africa, we know that the cultural context surrounding girls' education is complex. Poor families continue to favor boys when investing in education. Household chores, inheritance rights, marriage practices, and sexual violence all contribute to the hostile environment for girls' schooling. However, we have been struck, during the hundreds of interviews we have conducted, by how keenly the girls themselves often wish to remain in school. So, it seems reasonable to look for ways to give these girls more agency, rather than focus only on trying to change complex local factors and entrenched attitudes among older generations.

Gender and Power

We are also conducting a multi-method study of household purchase decisions in parallel with this work in Uganda. Those findings are not yet complete or published, but it is clear already that sanitary pads are nearly unknown in remote areas and that barriers to purchase are based in attitudes, not cost constraints. Secondary schools—which are usually boarding facilities in Uganda—increasingly require parents to provide pads (or the funds to buy pads) for female students. Consequently, the attitude has arisen that sanitary pads are something for the rare girl who goes off to continue her education, but are an unnecessary luxury for girls still in primary school (or their mothers). A box of sanitary pads will last for a month and can be had for less than one US dollar (the same is true in Ghana). Households typically spend many times that much each week for the male head to drink beer with his friends. The obstacle is not price, but the gender power imbalance within households.³

Current Practice

Most girls in the poor communities of the developing world already use cloth to deal with their menstruation. Sometimes they do use things like leaves and mattress stuffing, but by far the most common practice is to use cloth that is “found” in the household. This cloth might come from any number of sources (it is often from cut-up old clothes), but it is seldom, in our experience, specially made to be either absorbent or quick drying, nor does it include waterproof backing or secure fasteners. Instead, the girls try to move carefully, with the cloth in their panties or otherwise wrapped about their loins. About half of the girls we interviewed in both Uganda and Ghana knew something about menstruation before menarche. Many of those who had been told, however,

were simply instructed to come to their mother when it happened and told nothing else. Lack of knowledge about menstruation acts to ensure the girls will reveal their menarche as soon as it happens. Unfortunately, their families often then pull them out of school to marry them off or cease to provide support for education.

Girls and Agency

We believe that “giving girls agency” in this matter means telling the girls before their first period what will happen and providing the means to deal with it privately. That is why we advocate for early education on menstruation in the schools, as well as provision of sanitary care materials.

Circumstances of Use

Privacy is what pads promise. In places where a girl who has menstruated is seen as ready for marriage and fair game for sexual attack, the ability to keep the community from knowing if and when menarche has occurred can make all the difference. Maintaining that secret means not only helping the girl to avoid “accidents” at school, but keeping the world from seeing when she washes, changes, dries, or disposes of whatever menstrual method she uses. Importantly, the girl’s secret is as likely to be given away by scent as by sight, so cleanliness is essential.

We must bear in mind the scarcity of clean water, difficulty of boiling water, and lack of soap in many communities where such an intervention is most needed, as well as the small, shared spaces the girls inhabit. Few households in the communities we have studied have enough privacy to hang wet cloths indoors or to iron them in order to keep them clean and dry. Preparing to boil water is an arduous task and can almost never be done in private. And, in the poorest communities, girls often only have a few scraps of cloth to swap during their cycle. As a practical matter, weather conditions – especially in humid equatorial countries like Uganda – prevent cloths from drying completely even if left in a sunny spot. As a result, the cloth pads are often damp and may have debris clinging to them when returned to use. After a while, dirty menstrual cloths give off a distinctive scent and the personal hygiene poses a health risk.⁴

Disposal of commercial pads is also a problem, however. Poor communities in sub-Saharan Africa collect rubbish in a common pile and only occasionally burn the refuse. Even when the community does burn the rubbish, it is burned in the open, and often incompletely, leaving gobs of half-consumed objects for dogs or children to pick out. For this reason, girls hesitate to put used pads in the community rubbish. In order to protect their privacy, girls will place used pads directly into the latrine after use, or if they do not have a latrine, they may furtively bury their pads in the forest. Even in secondary schools we visited that provided a central incinerator not too far from the toilets, the girls put the used pads down the pit, rather than walk even a short distance to dispose of the pads in a publicly-visible way.

Product Design Requirements

Schools in rural areas are frequently some distance away—an hour’s walk or more is not uncommon—and getting to them from the villages they serve often requires crossing difficult terrain. So, a girl with only a bit of cloth to protect herself is likely to arrive at school in an embarrassing mess. When she does get to school, there will usually be no private place to wash and change. Water closets, if they are present at all, are cramped and may be either shared with boys or open to view. Many girls simply choose to stay home during their periods.



Long walk to school



Cramped water closets



Pit latrine









Rudimentary facilities

Pad Solutions

Commercially-produced disposable sanitary pads, if they can be had, work better in this environment because they can be changed quickly and secretly and do not need washing. They are also highly reliable: in our work, girls report they can go eight hours or more without changing the leading sanitary pad. Most girls try not to change at school, which is why the length of time a pad can be worn without changing is very important. The best way, from an environmental perspective, to dispose of sanitary pads is to burn them. That's because the plastic liner on the bottom will not biodegrade, though the rest eventually will. Given that each girl will wish to dispose of her pad privately, however, a central incinerator is not practical.

Cloth Options

Any cloth product designed for menstrual use under these conditions should use fabric that is absorbent, but releases soil and stain quickly when washed by hand. It must dry very rapidly, even in the absence of sunlight. The product design must also include a protective barrier and a fastening mechanism if it is to be any improvement over existing methods. Importantly, the cloth must be soft to the touch after having been washed and air-dried: putting rough-dried terry cloth, for instance, against this sensitive area before walking an hour to school causes painful chafing. Nevertheless, the product must be sturdy, because the friction from long walks and other activities will, over days and months of use, put significant strain on stitching. Hand-stitching is not normally strong enough. Zig-zag stitching or some other machine method is necessary, but sewing machines are quite rare in these communities.

					
Privacy Girls are not exposed when cleaning or changing in shared facilities	Disposal Easy and private so girls don't throw pads into latrines	Absorbent High daily capacity, releases soiling when washed, quick-drying	Dependable Long-lasting design to withstand repeated use and multiple washings	Secure Fastens to underwear and does not shift with movement	Comfortable Non-abrasive material for sensitive skin

School Improvements

There is no question that building more schools, as well as improving toilet facilities, would help the situation. However, such infrastructural additions will be a long time coming to remote rural communities. A "soft" interim measure, such as providing sanitary care materials, could pay off long before new schools and facilities might appear. Remember, the avenues of impact for girls' education nearly all occur by changing patterns of sexuality and fertility in adolescence and early adulthood. Thus, a "soft" intervention on behalf of pre-pubescent teens might show benefits in only three to five years.

Exploring Sustainability

The school system in Uganda has experienced a dramatic increase in the absolute number of girls going to secondary school, though the percentages are still low. This upsurge is caused by the high fertility rate (currently about 6, the third highest in the world in 2013), which has led to dramatic population growth in the past twenty years.

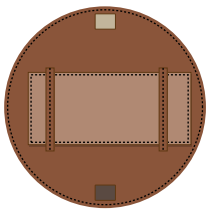
When we arrived to do our long term study in Uganda, we discovered that there was little resistance among government and NGO personnel in Kampala to the idea that girls needed sanitary pads, but that there was quite a bit of concern about the way sanitary pads and growing school populations were filling up pit latrines. Replacing the latrines is costly, as is cleaning them out. So, as a parallel measure to the larger study, we decided to test the feasibility of locally manufactured, reusable, affordable, and eco-friendly sanitary pads as an alternative to the usual disposable variety. Our intention was to substitute a successful alternative, if we found one, for disposable pads in the main study.

Unlike the Western markets for pads, Uganda is not dominated by one or two global manufacturers: when we began this test, there were 34 different brands of disposable pad available, most of them made in-country. The cost of a box of pads ranged from about US\$0.70 to US\$1.20. (We have learned that one box of 8 or 10 is

usually enough to get most girls through their monthly period. That's because their flow is lighter, probably due to poor nutrition, and they use the pads more sparingly, compared to women in the West.) Distribution of the pads goes out as far as medium-sized towns, but they are seldom available, except at some distance, in the rural areas. All sanitary pads available for purchase had plastic liners because Ugandan government standards require them.

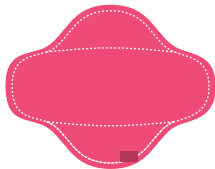
We found that three cloth pads of different, but potentially acceptable design were available for purchase, one in Uganda and two over the border in Kenya. In addition, a new disposable product, MakaPads, made out of papyrus, was being produced in Uganda. We also discovered an individually-sized incinerator that could be attached directly to the toilet building and used from within a single stall. Because each of these alternatives had distinct advantages and disadvantages, we decided to design a test that included all of them. A description of each menstrual method follows.

Cloth Pads



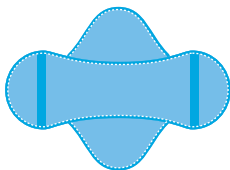
Mwezi Pads

Mwezi Pads are made on sewing machines by Kenyan women's collectives using fabrics that are locally available and affordable. They have a homemade appearance, but contain a plastic lining to protect against leakage. The pads consist of a circular base, with Velcro for attaching around the crotch of the underwear, onto which washable, removable inserts are anchored. A packet with four inserts costs US\$2.39.



KMET Pads

KMET Pads are individual washable pads produced by teenage mothers in Nambale District, Kenya, under the guidance of the Kisumu Medical and Education Trust. They are made of terrycloth with a soil-resistant plastic liner. Each pad fastens in the underwear. They come as a package of six thick pads costing US\$4.31. In preliminary testing, this pad took days to dry. However, a pad can be worn for a very long time without leaking – ten hours or more.



AFRIpads

AFRIpads are washable cloth pads produced in Uganda, providing village-based employment for women. They are sold in a "Comprehensive Menstrual Kit," that includes two plastic-lined "base" pads, three attachable winged liners, three straight liners, and two small bags for carrying. The AFRIpad is made of soft, quick-drying fleece and costs US\$5.95.

Manufacturers gave varying estimates of how long these pads would last. Our own assessment is that the Mwezi Pads would be unlikely to survive a year, that the AFRIpads would last a year or more, and the KMET Pads would be likely to last longer than a year, if they could be kept clean.

Disposable Pad



MakaPads

MakaPads are disposable sanitary pads made from recycled office paper, rainwater, and papyrus, which grows in profusion on public lands and along roadsides in Uganda. Once cut, papyrus plants renew within six months. Developed by Professor of Engineering Moses Musaazi at Makerere University, the pads are hand-produced in several locations in Uganda. The MakaPad is completely biodegradable except for a plastic liner that the Ugandan government requires. Production has a zero carbon footprint. A packet of 10 costs US\$0.50 cents.



Mak1 Incinerator

The individual-level Mak 1 Incinerator was also designed by Professor Musaazi. A chute placed inside the latrine connects to a small incinerator just outside the toilet building. Girls put used pads into the chute. The discarded pads drop directly into the main body of the incinerator, a closed metal container shaped like an oil barrel. The pads collect, unobserved, until someone burns the trash. No fuel is required as the design creates an air intake that will burn all its contents to temperatures above medical waste standards, which reduces refuse completely into ash. The emissions are within government standards. The machine costs about US\$1,000 to install; however, this one-time cost must be weighed against the repeated replacement of latrines.

The Study

Study Aims

To assess the acceptability of locally produced sanitary alternatives among primary and secondary schoolgirls in rural Uganda.

Site Selection

The study was conducted in a large secondary school with both day and boarding students, as well as in two primary schools within the same catchment. The sites were chosen primarily because, based on our experiences, the conditions exemplified the challenges we have observed for girls trying to stay in school throughout sub-Saharan Africa. In addition, we were acquainted with several leading figures in the town, including the headmistresses and headmaster of the schools, and had a great deal of local support for what we were trying to achieve.

SITE I: THE SECONDARY SCHOOL

Site Description: The secondary school, with an enrollment of 1,100, is located in a very small town among mountains near the border with Kenya. The town itself has no post office or bank. There is very little electricity or plumbing and there is no internet.

Like many secondary schools in Uganda, this institution charges tuition, as well as fees to cover boarding expenses. However, it is far from being a “posh” environment. The dorm rooms were austere and very crowded. The tanks sometimes did not provide enough water for washing. However, the toilet facilities—multiple pit latrines—offered privacy and were kept clean.

Students in this school come from quite modest homes and 59% grew up in very small villages. Only about a quarter of the students had plumbing at home, while about 10% had flush toilets. Wealthier students were more likely to come from urban environments than from villages, but were nevertheless from modest circumstances. Only 7.6% reported coming from “a big city like Kampala or Mbale.”

About 30% of the students are girls. Girls came from significantly wealthier households than the boys and were given a larger monthly allowance for essentials (US\$5.50 for girls versus US\$3.91 for boys). However, 18.6% of the boys were able to supplement their allowance through some form of employment, while only 1% of the girls had a job. These figures, which came from our own survey, suggest that the poor households from which the school draws many students still favor boys when investing in education. Nevertheless, all the students were on very limited funds from which they had to bear expenses other than their room and two meals a day: school supplies, breakfast, haircuts, soap, and all toiletries including



Rain water tank supplies water for 1,100 students

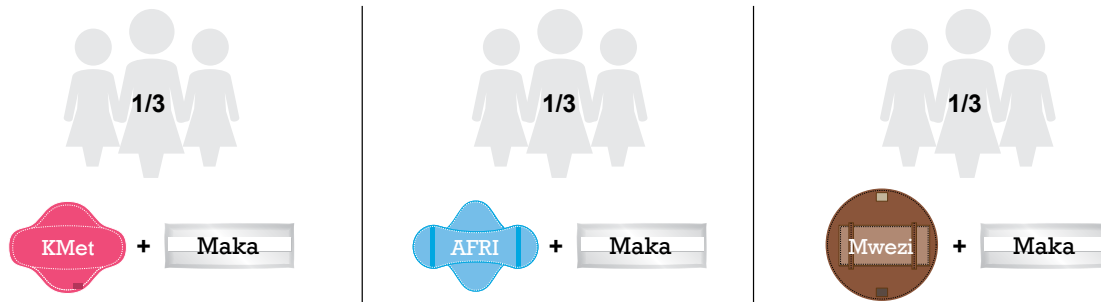


Crowded, austere dormitories

sanitary pads. The school does not require parents to send or buy pads, but they do encourage it.

Study Design and Methods: All girls enrolled in the school were included in the study (n = 402). They were divided into three segments. Each was given a package of MakaPads and told about the incinerators, which had been attached to two toilets at the school. A third were given a full kit of AFRIpads, a third were given Mwezi Pads, and a third got a package of six KMET Pads. Two respected local women explained use of pads and incinerators.

Secondary School: Study Design



A survey to record demographics, knowledge of menstruation, and past practices was administered in the local language by young women recruited and trained for the study, who entered the responses on iPads. The data were uploaded immediately to statistical analysts at the University of Illinois ATLAS lab and checked, with questions, duplications, and omissions resolved by communicating with the ground team within 24 hours. The girls were asked to try the pads and were told that researchers would return to inquire about their experiences. However, after about a month, a Peace Corps worker living at the school alerted the research team that the girls were not using the incinerators because of a local belief that burning menstrual blood would cause infertility. Focus groups were held at the school within three weeks, the girls reassured, and monitoring set in place.

To minimize the sense of outside intrusion, the first research team was comprised entirely of Ugandan personnel. After six months, this team returned, accompanied by Oxford and Illinois researchers, and the girls were interviewed in the same manner as before. More focus groups were held among the Senior 5 girls (the last year is Senior 6). A survey about wealth and spending money was conducted among a randomly selected sample of boys.

Findings for Site I—Secondary School:

Knowledge and Practices: At the first visit, 94.9% of the girls had experienced menarche and 92.8% were regularly using commercially available disposable pads. About half of the girls said they had first menstruated while still in primary school and almost 60% had tried both cloth and disposables while still in primary school. Fully two-thirds reported that, at some point in the past, they had been taught to sew a cloth pad, usually by someone at school. Since it has become common for teachers and visiting NGO workers to teach this practice at secondary schools, this finding is not as surprising as it might seem at first.

We were very surprised, however, that 52.9% of them had used disposables as their main method while still in primary school. Even among girls who had come from villages, 42% had used disposable pads as their main method during their primary school years. This is an important finding because sanitary pads are very seldom available in the rural areas from which the school draws most students and our household purchase study shows that families do not normally buy pads for primary school girls in those communities. That so many of these girls used sanitary pads in primary school suggests strongly that there is something different about their backgrounds. It may be that their parents are more supportive of education, for instance, and this is expressed by provision of pads, among other things.

Girls who had experience with both disposables and cloth were asked which they preferred: 89.2% preferred sanitary pads and 8.6% preferred cloth: 78.3% said disposable pads were better because they don't leak, 66.7% because they don't need to be washed, and 51% because they are easier to dispose. Of those who preferred cloth, about 60% claimed it lasts longer and only 15.8% said it was because cloth doesn't leak.

Since nearly all now used commercial pads, it could be expected that there were low rates of menstrual-related absenteeism. Our earlier work reported that girls who don't have disposable pads miss an average of 3-5

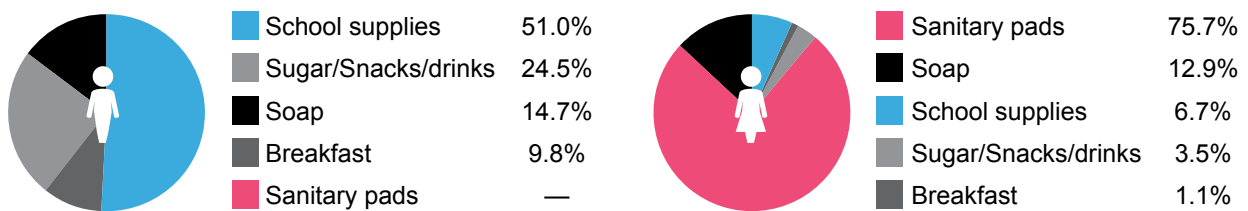
school days per month, mainly for fear of soiling uniforms. Here, however, only 27% reported missing school while menstruating, for an average of only two days per month. Importantly, 90.5% said the reason for missing class was “cramping or not feeling physically well,” not fear of blood leaking onto their clothes.

Purchase Habits: When asked what they spend their monthly allowances on, girls’ most frequent response was sanitary pads. Otherwise, the most frequently purchased items were the same for boys and girls: snacks, school supplies, soap, and breakfast.

The difference between girls’ and boys’ allowances was statistically significant and could be expected since girls came from more prosperous households. However, it should be noted that the difference is about equal to the monthly cost of sanitary materials and that 20-25% of the average girl’s allowance was reported to go to pads purchase. Importantly, girls who were still using cloth pads when we first visited the site had monthly allowances smaller than girls who used disposable pads. The difference, US\$4.00 versus US\$5.00, is also equivalent to the average price of a box of pads.

When asked what they would give up last if faced with a sudden financial emergency, boys said school supplies (51%), but girls said sanitary pads (75.7%). On the ending survey, we asked the girls what they bought with the money freed up by our provision of sanitary pads. Most often, they used the money to buy breakfast (35%), with nearly as many buying soap.

Which would be the LAST one you would give up--which would be the hardest to live without?



We believe these results highlight the meager resources on which both boys and girls must live while in secondary school, but also the prominent role sanitary provisions play in the continuing viability of the girls as students. Girls bear an additional financial risk, compared to boys, since the pads must be purchased even before items many observers would deem essential, such as school supplies and even breakfast.

Acceptability of Products:

Cloth Pads: At the end of the study, 53.6% of the girls said they planned to continue using the disposable pads available to buy in town, a significant drop given that nearly all had been regular disposable users at the beginning. Of the 46.4% who said they planned to switch to a cloth pad, 43.8% who were given the AFRIpads said they would switch; 25.8% of the KMET recipients said they would switch; and 22.6% of Mwezi Pads recipients. Before the intervention, 89.2% believed disposables were better than cloth; after, only 34.6% said they believed disposables were better than cloth. This response may suggest that the product designs of the cloth pads offered (firm closures, plastic liners) were superior to the cloth methods they had tried in the past (which were probably mostly unattached “found” cloth).

We were concerned that all these kits cost considerably more up front than a package of disposables (though, of course, amortized over the life of the pads, the cost was less). So, we asked girls if they would be willing to purchase the pads at the actual current price: 81.8% said yes. We also asked how difficult it would be for them to save up 15,000 Uganda shillings (which was the price of the highest cost pad) from their allowance and were mildly surprised that 74.5% said it would be pretty easy.

We found that most girls had purchased disposable pads during the six month test, even though they each already had cloth pads that could be re-used: 53.4% of the AFRIpads recipients, 52% of the KMET recipients, and 73% of the Mwezi recipients, had done so. The number of girls purchasing disposables during the test was comparable to those who said they would not switch. We conclude that about half of all secondary girls will not switch from disposables even if provided with a good cloth alternative for free.

Secondary School Findings



CLOTH PADS

46.4%

Plan to switch to a cloth pad

DISPOSABLE PADS

55.1%

Like very much
MakaPads

57.1%

Better than commercial
MakaPads vs commercial pads

MakaPads: When asked about the MakaPads—which all the girls had received—55.1% said they liked it very much. Perhaps even more importantly, when they were asked to compare MakaPads to commercial pads they had used in the past, 46.2% said MakaPads were the same, and 57.1% they were better. This suggests that the MakaPads, if they could be made available, could substitute for the pads that are currently for sale in the area, which is important not only because they are more environmentally-friendly, but because they are cheaper. The Makapad was the single most popular individual product by a slight margin. When compared to disaggregated data about cloth products, 15.1% of respondents who said they intended to switch to a different method planned to use MakaPads in the future, compared to 14.6% for AFRIpads, 7.7% Mwezi, and 6.3% KMET. Importantly, 90% of the girls also said they would buy the MakaPad at the current price if it were available.

Mak I Incinerator: In the end, we felt the results of the incineration test were inconclusive. Though girls reported that they did use the incinerator, the actual equipment did not show evidence of much use. Given that this study strongly suggests half of secondary girls will continue to use disposable sanitary pads even if provided with acceptable cloth pads for free, the question of disposal must be addressed. We believe that further work with individual-level incineration is warranted because the replacement of latrines will continue to be necessary if the girls do not switch to cloth. We feel individual incineration shows too much potential to be discarded on the basis of an isolated local belief. However, it must be underscored that the local belief seemed intransigent in this instance.

SITE II: THE PRIMARY SCHOOLS

Site Description: The two primary schools were in the mountains above the secondary school. Each was run on meager funds from the government, but benefitted from having very competent head mistresses. Neither school had electricity or water. One offered water closets that shut, while the other had only an enclosure made of sticks that allowed very little privacy. Students walked from their homes to school, sometimes a long way, but nearly always had to climb up or down the mountain.

Study Design and Method: All menstruating girls in the two schools (n = 110) were included in the study. We wanted to minimize our intrusion, so the headmistress in each case introduced the pads to the girls and told them how to use them. The research team was not present and did not visit the field site during the test. The girls in one school were given AFRIpads, while the other school got Mwezi Pads. After six months, the Oxford research team visited the schools and conducted focus groups, using interpreters.

Primary School: Study Design



55 Girls

AFRI



55 Girls

Mwezi

Findings for Site II—Primary Schools: Many girls at these two sites were using cotton wool. In one case, the mother was buying the cotton wool for the child, but in all other cases, the girls were pulling the cotton wool out of their own mattresses. Some were using other cloth, while one was having some success using two sponges. As we have found in our other work, some girls have a light enough flow that they can manage just by wearing more than one pair of knickers.

There was only one girl in the entire sample who had ever used a disposable sanitary pad—her mother gave her money and she went to buy them herself. For both these locations, the nearest shop carrying pads is about a twenty-minute drive away, across steep terrain. These girls would have to walk that distance, in addition to getting money for the purchase. Consider that only one girl out of 110 was given the money and took the walk. Compare this statistic to the finding that, in the nearby secondary school, more than half the girls who came from villages had used disposable pads in primary school. Again, we emphasize that the dramatic suggestion of a connection between pads use in primary school and presence in secondary school may be important and merits further study.

In both schools, girls reported that the pads we had provided were significantly better than their customary methods. The AFRIPads dried faster, taking four hours on a sunny day and up to two days when it was rainy, as compared to a full day in good weather for the Mwezi Pads and up to three days in bad. The girls complained that the lengths of the inserts for the Mwezi Pads were either too long or too short. Some had difficulty with the Mwezi Pads because they inserted the base with the inserts on the underside, which caused the blood to spill quickly out of their panties. The Velcro on the Mwezi Pads came unsewn and had to be replaced with safety pins. Several girls reported that they had to add extra layers of cloth or cotton wool into the Mwezi Pad, whereas the AFRIPads inserts were reported to be enough for all, including one girl whose flow was so heavy she washed the inserts in a stream near the school during the day.

Primary School Findings



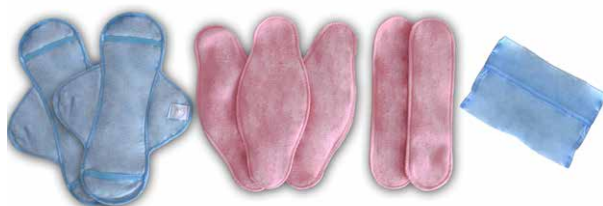
All girls at the primary schools reported that the cloth pads they had been given were more reliable and stable than their customary methods.

Girls at both schools, however, said the pads we had provided were more reliable and stable than what they normally used. They participated in sports using these pads, which they had not previously felt able to do while in their periods. They also reported feeling confident enough to stand in class to recite, as well as feeling less distracted with worries about leakage. In both the AFRIPads and the Mwezi Pads, the plastic lining and means of attaching the pads to the underwear combined to make an important difference in the girls' ability to come to school, to participate in activities, and to learn.

It was worrisome to learn that most of the girls had no access to soap for washing the pads during this time. They did not, however, report an odor problem, though some suggested that the Mwezi Pads were beginning to smell.

Conclusion

On the basis of these reports, we decided to put the AFRIPads into a larger study, which was beginning in another part of Uganda around this time. We remained very concerned about cleanliness. However, we felt that the improved reliability and stability reported by the primary schoolgirls in the sample trial would be important enough to warrant testing a cloth product, given the better environmental impact and the limited access to disposables. Our work in primary schools during the sample trial demonstrated to us how difficult it was to get disposable pads in remote places and how unlikely it was that fathers would pay for them. So in the larger study currently being conducted in Uganda, we have provided soap along with the AFRIPads and emphasized the importance of cleanliness to the girls – all of whom are in primary school. The results of this larger study will not be available for at least another year.



AFRIPad Comprehensive Menstrual Kit

We chose the AFRIPads over the other cloth pads because of their marginally better acceptability in both the primary and secondary school tests and because we thought the microfleece would be easier to keep clean. However, we emphasize that the Mwezi Pads were acceptable in the primary environment and performed better than customary means. This is important because the Mwezi Pads can be made by anyone with a sewing machine, so NGOs and government workers could give instructions—with clear direction about the selection of materials—and communities could make their own pads.

It is extremely important for government and civil society to remember, however, that access to soap, water, and private space is a big issue for this purpose. There may be health dangers for girls who can't keep the cloth clean. Even more important, from our perspective, is that the violation of privacy that can result from either failing to wash adequately (hence, creating recognizable odor) or from drying the cloth too publicly, presents a real danger for young girls, who are often the victims of sexual predators at this juncture.

We continue to recommend against the introduction of menstrual cups. Local norms usually will not tolerate insertion of a foreign object into a young girl. Further, the difficulty of getting soap and hot water presents an obstacle to safe usage that is insurmountable for most. We would also be concerned that girls may share the menstrual cups, adding further to the health risk.

At the secondary school level, we believe disposable pads will be chosen by the most girls even when cloth pads are provided for free. Not only did half of these girls continue to buy pads even after we had provided cloth ones for free, but two-thirds knew how to sew their own before we arrived and yet nearly all of them were regularly using disposable pads. Further, in our work in other parts of Uganda, we learned that there is a social stigma against cloth use in the secondary schools: disposable pads are modern, while cloth pads are associated with rural poverty. Teenagers everywhere are sensitive to such judgments. Furthermore, the necessity to hang the cloth to dry on pegs in crowded dorm rooms has been mentioned as a source of severe embarrassment to us by many girls. Remember, too, that boys outnumbered girls two to one in this school. Except in the few all-girl secondary schools, this overwhelming preponderance of boys will be the norm. Those proportions only make the necessity for a reliable menstrual method seem more important. There is no sense in spending large sums of money to provide, teach, or otherwise push cloth pads when the conditions are still likely to produce disposable pads as the overriding choice.

Given the strong preference for disposable pads, we believe it is important to focus on providing less expensive pads with a better environment profile, as well as to continue working on individual-level incineration. Other technologies are being developed in eastern Africa, based on banana leaves and water hyacinths, as well as papyrus. As the MakaPads were judged to be equally good as other commercial pads, it would make sense to further support these kinds of technologies, helping the businesses that produce them to scale up and increase their reach. In addition, we have observed that taxes levied across borders in Africa are hindering the growth of these technologies in several cases. Most such technologies are developed using grants, but then the support required to begin production and marketing is not forthcoming. The producers cannot spread through the region because of the high duties between countries, as well as prohibitive shipping costs.

The macro-level concerns of government, environmental, and development critics regarding the provision of disposable sanitary pads to adolescent girls in developing markets tend to ignore the "girl-level" circumstances we have reported. We believe it is important for the international development community to give more attention to the intimate conditions that give rise to these choices, rather than act on unfounded assumptions about the relative importance of price or environmental preferability when it comes to sanitary care. Not only will the rapid promise of girls' education fail to materialize as long as policy makers give short shrift to such issues, but the safety and dignity of girls will be jeopardized by inconsiderate measures.

We continue to believe that sanitary care plays a significant role in retaining girls through and past primary school. We believe that this study has added new support to the notion that sanitary materials should be provided, at least in the short run, to support girls' education.

Learn more about the study at:

<http://www.doublexeconomy.com/publications-projects-2/sanitary-care-and-girls-education/>

1 Montgomery P, Ryus CR, Dolan CS, Dopson S, Scott LM (2012) Sanitary Pad Interventions for Girls' Education in Ghana: A Pilot Study. PLoS ONE 7(10): e48274. doi:10.1371/journal.pone.0048274 and Dolan, Catherine S., Caitlin R. Ryus, Sue Dopson, Paul Montgomery, and Linda Scott. "A Blind Spot in Girls' Education: Menarche and Its Webs of Exclusion in Ghana." *Journal of International Development* (2013): n/a–n/a. doi:10.1002/jid.2917.

2 This study is being conducted under funding jointly provided by the Economics and Social Research Council and the Department for International Development, both of the United Kingdom. We are working in partnership with Plan Uganda.

3 More on local household purchase politics: <http://www.doublexeconomy.com/2013/07/13/gender-divide-in-uganda-norms-myths-and-household-consumption/> and <http://www.doublexeconomy.com/2013/03/23/the-gender-of-necessity-beer-and-lipstick-in-rural-uganda/>

4 "70% Can't Afford Sanitary Napkins, Reveals Study." *The Times Of India*. Accessed August 24, 2013. http://articles.timesofindia.indiatimes.com/2011-01-23/india/28363510_1_women-resort-napkins-menstruating