

INCLUSIVE INNOVATIONS

Changing the Lives of Women and Girls through Affordable Feminine Hygiene Products

Low-cost products save lives, reduce school and work absenteeism, and increase the incomes of women at the bottom of the pyramid

HIGHLIGHTS

- Social enterprises are producing and selling good-quality sanitary products at affordable prices.
- Manufacturing sanitary pads in rural and remote areas, using locally available raw materials, widens reach and reduces costs.
- Women are involved in every stage of the value chain, often producing and selling pads themselves.



Summary

Women and girls who use unhygienic alternatives for sanitary pads or tampons (such as newspapers, leaves, cloth, and cow dung) not only face health issues, but also tend to miss work or school more frequently. Indeed, most women in developing countries, particularly in Asia-Pacific and Sub-Saharan Africa, do not use adequate female hygiene products. This lack of use negatively affects their self-esteem and participation in education and employment and ultimately, in society.

Social enterprises have responded by developing low-cost methods of sanitary pad production coupled with innovative models for distribution and marketing. Women at the Bottom of the Pyramid (BoP) are included at all stages of the value chain—as entrepreneurs or employees in production, distributors, health educators, and consumers.

Development Challenge

Only a small fraction of women in developing countries use sanitary products during menstruation. Most make do with newspapers, leaves, pieces of cloth, cow dung, and other materials, which cause chafing, urinary tract infections, reproductive tract infections, and other reproductive health problems, including fatal toxic shock syndrome and infertility (Boosey and Wilson 2013; UNICEF 2009). Lack of sanitary products also causes girls to stay home from school and women to miss work. A third of Ugandan schoolgirls cite lack of pads as the reason for missing school (Crofts and Fisher 2012). Nextbillion (2013) estimates that lack of access to sanitary products causes low-income women to lose an average of five years of lifetime wages. Inadequate menstrual hygiene also prevents girls and women from performing other activities and engaging with others (Montgomery and others 2012).

The market for feminine hygiene products is huge. In India alone, where more than 300 million women do not use adequate sanitary products, it is estimated to be worth more than USD 200 million (AC Nielsen 2011; Economist 2013). The challenge is to make products affordable and convince women and girls to use them.

Business Model

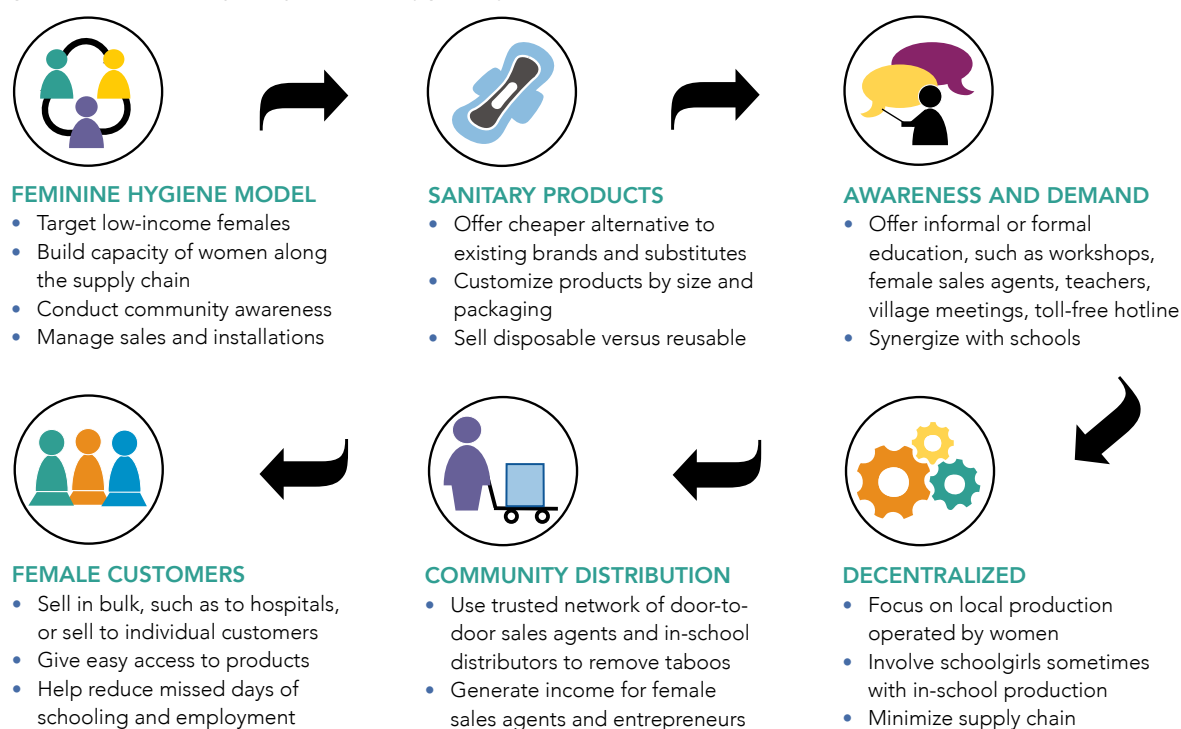
Components of the Model

Social enterprises and NGOs produce both sanitary products and simple machines that allow women in villages to produce sanitary pads. Manufacturers of sanitary products (mostly pads) procure the raw materials, produce the products, and organize distribution (Figure 1).

Manufacturers of machines (Aakar Innovation, Jayaashree Industries [JI], and Saathi) produce the machines, identify women's groups interested in becoming microentrepreneurs, and provide training and in some cases assistance in financing the purchase of the machine. Women's groups purchase the machines; organize the production process; purchase raw materials; share knowledge about menstrual hygiene; engage in word-of-mouth advertisement; and sell pads door to door, from home, or back to the machine vendor for sale to consumers. Although this model requires a large upfront investment, it generates a constant revenue stream for rural women.

Many non-state actors train health educators and organize awareness campaigns.

Figure 1. Features of the feminine hygiene products model



Cost Factors

Sanitary products sell for USD 0.03–0.16 apiece—30–80 percent less than brand-name products. The per item cost is higher for reusable products (e.g., AFRIPads reusable pads cost USD 4–5 per 4-pack) than for disposable products, but the annual cost is only about 20 percent.

Pad-producing machines can cost USD 500–USD 1,500 plus installation and training. Raw materials used in production (papyrus, banana trunk fiber, bamboo, water-hyacinth pulp) are often locally available.

Revenue Streams

Enterprises selling production machines generate revenue from selling the machines. Saathi, an Indian company, supplements these revenues by selling banana fiber to women's groups using their

machines. Aakar, another Indian enterprise, buys sanitary pads from women's groups and sells them at a profit, generating additional income for the social enterprise.

Micro-entrepreneurs generate monthly profits of USD 50–100 (Sandhana 2012). Both JI and Saathi report that women's groups earn an average profit of USD 400 a month (CNBC 2014; New Inventions n.d).

Donors and investors provide funding, ranging from start-up grants to investments. Technology for Tomorrow (T4T) received a USD 78,000 two-year research and development award from GIZ and the Rockefeller Foundation (Adelphi 2013). Other enterprises (Saathi, SHE, T4T) have won financial awards in business competitions. Afri-Can received seed funding from the US Agency for International Development (USAID) and crowd-funding through Indiegogo.

Financial Viability

Both JI and T4T report that they are profitable. T4T reported earning USD 300,000. It sells 90 percent of its pads to the United Nations High Commissioner for Refugees (UNHCR), which distributes them to refugees in Uganda (University of Oxford Humanitarian Innovation Project 2013).

Partnerships

Half of the social enterprises work with partner organizations to accelerate distribution. T4T distributes its MakaPads through UNHCR. Azadi, AFRIpads, Ruby Cup, One Girl, and JI use partners to identify women's groups in local areas. Others sell pads to international NGOs for their redistribution.

Implementation: Delivering Value to the Poor

Awareness

Many girls and women lack adequate knowledge of reproductive health in general and menstrual hygiene in particular, leaving them susceptible to myths and misconceptions (Garg, Goyal, and Gupta 2012). To fill this gap, female sales agents, teachers, and community health workers working for or with social enterprises provide education at informal knowledge sharing sessions, formal workshop, schools, and village meetings. Afri-Can employs teachers as sales agents, training them to educate schoolgirls on menstrual hygiene; it also organizes school health clubs. AFRIpads uses radio to disseminate information about hygiene and raise awareness about its product. Azadi operates a toll-free menstrual helpline to provide information to girls. Ruby Cup sells its product only after a female mentor explains how it is used. Sustainable Health Enterprises (SHE) operates menstrual health and management clubs run by teachers at 10 schools.

Acceptance

Cultural taboos reduce acceptance of feminine hygiene products. Reusable pads need to be dried in the sun and are thus visible to others, which is taboo in many places (Women's Global Toolkit 2013). In Kenya, for example, a father is not allowed to see his daughter's blood. Tampons are often considered taboo, because some cultures ban on inserting foreign objects into the body (Crofts and Fisher 2012). However, in some places where water supplies may be more limited, menstrual cups have been successfully promoted and adopted, as they require less water to clean than reusable pads and one cup can last for many years.

To enhance acceptance, enterprises adapt products and packaging to customers' needs and wants, sell them in kits, distribute them through locally trusted partners, and create local brands. A number of businesses conducted trials and studies to understand consumer preferences before beginning production. Product adaptations that resulted from these efforts included adding a string that attaches the pad to the body for users who wear no underwear.

To encourage adoption of their reusable pads, some companies sell them in kits that contain soap, a holder, underpants, bags for used pads, and instructions in local languages.

Most products are produced and distributed locally, often by local women's groups or community health workers. Many women's groups create their own brands, identifying pads with local production and allowing for a culture-specific approach.

Enterprises address cultural taboos through community events involving both men and women. Programs at the village level include awareness sessions and plays to destigmatize taboo subjects. Employing salespeople who are sensitive, empathetic and trusted by the target group facilitates uptake (Economist 2013).

Accessibility

Without the efforts of social enterprises, many women would lack access to products because the market is dominated by multinationals, whose distribution networks are limited in rural areas (Inclusive Business n.d.). Social enterprises ensure accessibility through local production, which minimizes transport requirements; door-to-door sales; and distribution through schools and humanitarian organizations, such as UNHCR. Many distribution models circumnavigate outlets dominated by men, because women are more comfortable buying sanitary products from other women (Price 2014).

Door-to-door sales are the most common form of distribution. About half of business models also distribute products in schools. In Sierra Leone, One Girl distributes pads for free; Afri-Can, SHE, and Impact Africa sell their products to schoolgirls. In India 126 machines produced by JI have been installed in schools. Schoolgirls invest in raw materials and produce the pads, which they sell to other students and community members at a profit. SHE sells its pads through community health workers.

Affordability

Low-income customers can afford the products, because enterprises keep costs low, through a short supply chain, the elimination of middlemen, local production, use of local inputs, and avoidance of marketing costs. Flexible payment also facilitates affordability. JI accepts barter and late payment for its machines, as do women selling JI pads to other women in rural areas. One Girl sells packs with as few as two pads to women with insufficient cash flow (Table 1).

Production machines are made affordable by selling to women's groups rather than individuals. Machines are typically manual, avoiding dependence on electricity.

Table 1. Selling points and prices of selected social enterprises selling feminine hygiene products

| Model/country | Product type | Selling points | Price |
|---------------------------------------|--------------------------------|-------------------------------------|--|
| Aakar Innovation (India) | Production machine | Shops, sales agents | Machine: USD 6,800 Pads: 40 percent less than brand-name products |
| Afri-Can Trust (Kenya) I-Care pads | Reusable pad | Schools, shops | Around USD 2.50 for a package that lasts a year (45 percent less than least expensive product). |
| AFRIpads (Uganda) | Reusable pad | Sales agents, partner organizations | USD 4–5 per pack. AFRIpads Deluxe Menstrual Kit has a set of 4 reusable sanitary pads, plus 1 storage bag. (20 percent of the cost of brand-name products) |
| Azadi (India) | Compostable, biodegradable pad | Partner organizations, sales agents | USD 0.04 a piece (43 percent less than brand-name products) |

| | | | |
|--|---------------------------------|--|---|
| Impact Africa (Kenya, Rwanda, South Sudan, Tanzania, Uganda) (Safi Pads) | Reusable pad | Selling points in informal settlements, schools | Half the cost of brand-name products |
| Jayaashree Industries (India) | Production machine | Sales agents, schools | Machine: USD 1,500 Pads: USD 0.03 apiece (80 percent less than brand-name brands) |
| One Girl (Sierra Leone) (Pads provided by Technology for Tomorrow) | Compostable, biodegradable pads | Sales agents, schools, partner organizations | Free in schools, USD 0.68 per pack (of 10 pads) |
| Technology for Tomorrow (Uganda, exports to Sierra Leone) | Compostable, biodegradable pad | Partner organization, sales agents | USD 0.41–0.82 for a pack of 10 pads (one-third the cost of brand-name products) |
| Ruby Cup (Kenya, South Africa, Uganda, Zambia) | Reusable cup | Sales agents, partner organizations | USD 0.11–0.16 apiece through sales agents in Kenya, USD 30 online and in shops in Germany |
| Saathi Healthcare (India) | Production machine | Sales agents | Machine: USD 500 Pads: USD 0.03 apiece |
| Sustainable Health Enterprises (SHE) (Rwanda) | Compostable, biodegradable pad | Sales agents (community health workers), schools | USD 0.03 apiece (30 percent less than imported brand-name products) |

Results and Cost-Effectiveness

Scale and Reach

The number of people enterprises reach ranges from 1,200 (One Girl) to about 7.5 million (JI) (Table 2). JI is the most mature model; it has been replicated in 17 countries through the export of machines and the dissemination of information on its model. AFRIpads is the second-most mature model, with a reach of 500,000 women. Afri-Can Trust has educated some 30,000 girls in menstrual hygiene management at 290 schools. Four of the 11 social enterprises studied are expanding (Impact Africa, JI, Ruby Cup, T4T).

Many models target the rural poor, though some models cater to the poor in urban areas. A few target specific groups. Afri-Can targets low-income working women; Aakar Innovation targets urban areas, selling products in grocery shops and beauty parlors; and Ruby Cup focuses on slum areas.

Table 2. Number of women and girls reached by selected providers of feminine hygiene products

| Enterprise/country | Number of women and girls receiving product |
|---|---|
| Afri-Can Trust (Kenya) | 35,000 |
| AFRIpads (Uganda) | 500,000 |
| Azadi (India) | 300 villages |
| Impact Africa (Kenya, Rwanda, South Sudan, Tanzania, Uganda) | 125,000 |
| Jayaashree Industries (India) | 7.5 million |
| One Girl (Sierra Leone) | 1,200 |
| Ruby Cup (Kenya, South Africa, Uganda, Zambia) | 5,000 |
| Saathi Healthcare (India) | About 12,500 (in five villages) |
| Technology for Tomorrow (T4T) (Uganda, exports to Sierra Leone) | 34,000 |

Improving Outcomes

Feminine hygiene products reduce health risks, such as reproductive tract infections which can lead to infertility and other child birth complications.

These products also increase school attendance. Following the introduction of its pads, Afri-Can Trust reported a 40 percent increase in school attendance for 30,000 girls across 250 schools in Western Kenya. Sanitary pads and menstrual hygiene education reduced absenteeism among schoolgirls in Ghana from 21 percent to 9 percent (Montgomery and others 2012). Girls also reported greater confidence and self-esteem, more participation in chores and everyday activities, less shame and isolation, and improved well-being during menstruation.

Women's productivity at home and at work rises when they have access to feminine hygiene products. In the absence of access to hygiene products, 300 million girls and women in rural India have to stay confined at home during their periods. An average woman living in poverty, loses five years of unearned wages over her lifetime due to ineffective menstruation options—income that could otherwise be put towards health care, education or food expenses. (Nextbillion 2013). In a survey conducted in 9 cities in India, around 31 percent women reported a drop in productivity levels during their periods, missing 2.2 days of work on an average. (AC Nielsen 2011).

Production and sale of products also generates employment, mostly for women. Some 21,000 female micro-entrepreneurs worldwide produce and sell sanitary pads using the machines JI produces. T4T employs 250 people, most of them from vulnerable groups, including women at the bottom of the pyramid, people with HIV, and refugees. Sanitary pad production also generates income for local farmers, who see increased demand for papyrus, banana trunk fiber, bamboo, and water hyacinth pulp. Women also work as sales agents and educators.

A 2011 study estimated that access to sanitary products by all women in India could increase India's economic growth rate by 4 percentage points (AC Nielsen 2011). In Rwanda, SHE estimates that 18 percent of girls and women missed out on school and work last year because they could not afford to buy menstrual pads, these absences can add up to considerable potential GDP losses (SHE n.d.).

Cost-Effectiveness

Most models are profit-oriented. Some serve the bottom of the pyramid by cross-subsidizing sales. Ruby Cup, for example, is a silicone product that can be used for up to 10 years, eliminating the need for some 12,000 tampons or pads. The company charges just USD 0.11–USD 0.16 per cup in developing countries, subsidizing these sales by charging about USD 30 for its product online and in shops in Germany (Emma 2014).

Scaling Up

Scaling up is possible, thanks to cost-effective, standardized production using locally available materials. JI's simple and open source technology has led to the model's adoption in 18 countries. Partnerships with women's groups and other actors, such as local businesses, NGOs, and governments, can also facilitate growth and replication.

Media attention can be a powerful driver of success. JI's founder, Arunachalam Muruganantham, spent years developing a machine that enabled rural women to produce affordable sanitary pads. Once his story became popularized in India, support by partners and demand from women's groups and customers increased, leading to international fame, including a documentary (<http://www.menstrualman.com/>).

Challenges

Several constraints risk limiting growth and impact. Inadequate sanitation facilities, particularly at schools, are a major impediment to growth: Even with access to sanitary pads, girls may stay home

from school if there are no toilet facilities with running water, where they can replace the pad or wash in privacy. Sanitation facilities in Uganda are often unsuitable for changing pads, because toilets (pit latrines) are located separately from the bathing blocks where water is available for washing. Moving between the toilets and washing blocks is inconvenient for girl students as this impacts their privacy since others can notice that they are on their period. (Crofts and Fisher 2012). A study in Tamil Nadu, India, found that the main causes of school absenteeism were lack of water (89 percent) and privacy (50 percent) for washing (Jothy and Kalaiselvi 2012).

Disposal of sanitary products is another important issue, both from a waste management and a cultural perspective. In Uganda 65 percent of girls throw disposable pads into pit latrines, causing blockages; the pads also cause the latrines to fill up more quickly (Bharadwaj and Patkas 2004; Crofts and Fisher 2012).

Some models, such as Aakar Innovation, Azadi, One Girl, and T4T, produce compostable products made from papyrus leaves, which disintegrate within a year in pit toilets. T4T also sells incinerators of different sizes to schools and health facilities. Compostable or reusable products partly address the environmental issue.

Lack of privacy creates shame, particularly given cultural taboos, which prevent girls and women from washing a reusable cloth in a public space, such as school. Drying reusable products in the sun is also difficult. In a Ugandan study, 79 percent of girls reported drying their sanitary pads in their bedrooms (Crofts and Fisher 2012).

The belief that local products are inferior to imported ones also limits uptake. Ugandan schoolgirls prefer commercially produced disposable pads because of their lighter weight, greater absorbency, and lower likelihood of leakage; they also liked the “modern” image of imported products (Crofts and Fisher 2012).

Combining the sale of sanitary products with menstrual hygiene education and information is key to addressing some of these constraints, particularly cultural taboos and misconceptions. It has the power to erode taboos and break down gender barriers more generally.

Role of Government and Public Policy

Both donors and recipient governments have begun to address menstrual hygiene as a key issue in women’s health and girls’ education. International institutions such as the World Bank, UNESCO, UNICEF, the World Health Organization (WHO), and others have started including menstrual hygiene management, including the provision of sanitary products, in their research and support to governments. Including menstrual hygiene in national sanitation and hygiene strategies and school health policies is an important step toward improving awareness of feminine hygiene products. Also critical is ensuring that toilet facilities with running water and sanitary pad disposal facilities are available to girls (UNICEF 2012).

Recognizing the importance of sanitary products, several governments have started subsidizing pads or making them available for free. In 2010, the government of India initiated the Menstrual Hygiene Scheme, which provides highly subsidized sanitary pads to rural girls living below the poverty line. State governments followed suit with similar initiatives. In 2011, the government of Kenya allocated almost USD 4 million to provide free sanitary napkins to schoolgirls; it committed an additional USD 2 million in 2014 (East African Business Week 2014; Pacific Standard 2014).

Cutting taxes is another way governments can facilitate access to sanitary products. In 2011 Kenya stopped levying duties on imported pads, a move that reduced their cost by 18 percent (New Internationalist 2013).

Facilitating knowledge sharing and discussion is another way in which governments can play a role. In 2014, the Ugandan government supported the first national conference on menstrual hygiene management, which sought to break the silence on menstruation and keep girls in school. AFRIPads took on the role of national coordinator of Menstrual Hygiene Day. Together with partners, it presented a menstrual hygiene management charter to the speaker of Parliament to raise awareness about the need to include menstrual hygiene management in health and education policies.

Table 3. Selected social enterprises that produce feminine hygiene products

| Enterprise | Country | Description |
|--|--|---|
| Aakar Innovation Pvt. Ltd. | India | Produces and distributes affordable, high-quality, compostable sanitary napkins and raises awareness of menstrual hygiene. http://www.aakarinnovations.com |
| AFRIPads Ltd. | Uganda | Manufactures and sells washable cloth sanitary pads. http://afripads.com/ |
| Afri-Can Trust | Kenya | Produces high-quality, affordable, reusable sanitary pads and provides practical life enhancement training that equips women and girls to live freely and take charge of their lives. Product can be used for up to a year. http://www.icarepads.com/ |
| Azadi | India | Developed a 100-percent biodegradable sanitary napkin that is 43 percent less expensive than average retail price. Enterprise also operates a toll-free menstrual helpline, sponsors a ‘menstrual-friendly schools’ initiative, and supports an “Azadi Instigators” program in which trained outreach team members deliver empowering puberty education sessions to low-income youth. http://azadi.co.in/ |
| Impact Africa | Kenya, Rwanda, South Sudan, Tanzania, Uganda | Provides affordable sanitary kits that include inexpensive, reusable, washable sanitary pads. http://impactafricaindustries.com/ |
| Jayaashree Industries | India and 17 other countries | Company founded by Arunachalam Muruganantham produces world’s first low-cost machine to produce sanitary pads. More than 600 machines have been installed in 27 states in India and 17 other countries. Machines are sold directly to rural women’s self-help groups through the support of bank loans and not-for-profit organizations. Machine operator can learn the entire pad-making process in three hours and employ three others to help with processing and distribution. http://newinventions.in/ |
| Miriam Seba | Ethiopia | Produced in Ethiopia, Miriam Seba makes environmentally friendly, low cost, reusable pads that last 12–18 months. Made of cotton with water proof lining to prevent leaks. Produces about 600,000 pads per year. http://www.dignityperiod.org |
| One Girl | Sierra Leone | Delivers affordable, biodegradable sanitary pads, through network of female entrepreneurs and school systems. http://www.onegirl.org.au/what-we-do/launchpad |
| Ruby Cup | Kenya, Zambia, South Africa, Uganda | Partners with NGO networks across Africa to distribute silicone menstrual cup that can be used for 10 years. Subsidizes distribution in Africa with sales in Europe. http://www.ruby-cup.com |
| Saathi Healthcare Private Ltd. | India | Developed small-scale manufacturing process to produce affordable sanitary protection from banana tree fiber waste. Pads are manufactured and sold by local women. http://www.saathipads.com/ |
| SHE (Sustainable Health Enterprises) | Rwanda | Helps women jumpstart social enterprises to manufacture and distribute affordable menstrual pads. http://sheinnovates.com |

| | | |
|---|---------------------------------|---|
| Technology for Tomorrow (T4T) | Uganda, exports to Sierra Leone | Produces MakaPad, a sanitary napkin made of papyrus and paper waste, that is manufactured in Uganda without the use of electricity. Company also sells special incinerators to dispose of nonbiodegradable waste in schools, clinics, and hospitals. http://t4tafrica.co/home |
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Profile: Jayaashree Industries

Female microentrepreneurs produce and sell pads, bringing sanitary hygiene to women and girls in villages



Challenge

Of the 355 million women of reproductive age in India in 2011, 88 percent (312 million) did not use sanitary pads, resorting instead to unhygienic alternatives, such as ashes, newspaper, sand, husks, and dried leaves to manage blood flow during menstruation (Khan and Gokhale 2013). Such alternatives increase the risk of reproductive tract infections by 70 percent (Sinha 2011). Poor menstrual hygiene is also associated with cervical cancer, the second most common cancer among Indian women (Institut Català d'Oncologia 2014).



These microentrepreneurs—pictured here with company founder Arunachalam Muruganantham—produce and sell sanitary pads in their villages.

Lack of sanitary pads has also been linked to poor school attendance and drop-out. According to a 2011 study by AC Nielsen, 23 percent of girls in India drop out of school after they start menstruating (30 percent in Northern India) (Sinha 2011). Girls who remain in school miss about five days a month, equivalent to 20 percent of the school year. Women miss work for the same reason. The benefits of providing women and girls with sanitary pads are thus enormous.

Innovation

Jayaashree Industries (JI, newinventions.in) developed the world's first local sanitary pad production machine. The business is based on a women-to-women model. Groups of 4–10 women acquire a machine, which they use to produce pads they sell to other women. Home sale enables women's groups to create awareness and allows for an intimate information exchange on menstrual hygiene in an environment that facilitates privacy.

JI has set up 2,300 manual or semi-automated machines in India. Each machine can produce 1,000–3,000 pads a day, using locally available pine wood fiber or other absorbent materials, such as bamboo fiber. Purchase of a machine—including installation and training—costs USD 2,300–3,800. The women finance their purchases through self-help group loans, loans from NGOs, banks, investment organizations, and government social schemes.

JI empowers women and gives them a sense of ownership by having them choose their own brand names. Since the sanitary pads are marketed only locally, through word of mouth, the benefits of creating a local product outweigh the creating a national brand.

The Earn While You Learn project installed 126 machines in schools. Schoolgirls who purchase the required raw material produce the pads for their own use and sell their surplus production in nearby villages. Corporate social responsibility programs or wealthy donors paid for the machines.

Impact

India has about 2,300 machines, each supplying about 3,000 customers. Thus, the program provides 6.9 million girls and women with access to sanitary pads.

It also has significant economic and social impact. Its 21,000 rural microentrepreneurs earn USD 46–99 a month—two to three times what the average farm worker earns and two to four times the poverty line of USD 15 a month (Singh 2014).

Jl reinvests all profits from the sale of machines in the business. It increased its production capacity 50-fold in the 11 years since its founding.

Scaling Up

Jl benefits from the dynamism of its founder, Arunachalam Muruganantham, one of *Time Magazine's* 100 Most Influential People in the World in 2014. His mission is to create one million employment opportunities and convert India to a country with 100 percent sanitary pad use.

The company's decentralized model facilitates horizontal expansion and deep penetration into rural areas. Local production also has the advantage of cutting transportation and storage costs (processed material requires 10 times more storage space than unprocessed material). Uptake of the product has been reinforced by setting up machines in schools—not least because young girls are more receptive than older women to using sanitary pads and often convince others to do so as well.

Cultural taboos associated with menstruation make it challenging to reach women in rural areas. Considerable time is required to receive community permission to talk to women and dissipate their doubts about the product. Installing the machines and training people to operate the time takes time. Market development is slow, and producer groups often face limited economic viability.

Jl has received requests from several other countries, including Botswana and Côte d'Ivoire, for assistance in replicating the model. Although the company holds a patent on the machine, it provides open access to the model, facilitating replication. To date, more than 250 machines have been sent to 17 countries, improving the lives of an estimated 750,000 people.

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Profile: Technology for Tomorrow Limited

Inexpensive, locally produced pads are providing women with safe, clean sanitary care and providing disadvantaged people with jobs



Challenge

Lack of sanitary pads is a major problem in Africa, where millions of girls and women have no choice but to resort to unhygienic and inadequate alternatives, such as newspaper, old rugs, and ashes, which cause chafing and reproductive tract infections. One out of 10 African schoolgirls does not attend school during menstruation (UNESCO 2014), and women lose five years of unearned wages during a lifetime because of work absences during menstruation (Nextbillion 2013). One of the biggest unserved populations is female refugees, millions of whom lack access to pads.



Most of the pads these women produce are distributed in refugee camps.

Innovation

Technology for Tomorrow Limited (T4T), based at Makerere University in Kampala, has developed several products to support low-income communities. Its Maka (Menstruation, Administration, Knowledge, and Affordability) sanitary pads are made of local papyrus and paper waste provided from shredded recycled paper provided by the United Nations High Commissioner for Refugees (UNHCR). The four factories that produce the pads employ marginalized groups, including people living with HIV, refugees, abductees of the Lord's Resistance Army, and economically disadvantaged women in Kampala.

A 10-pad packs costs USD 0.41–0.54, about 50–75 percent less than commercially available products. The pads disintegrate in a pit latrine within a year, overcoming the problem of waste. The little electricity need to produce them can be generated by a solar panel.

UNHCR distributes about 90 percent of all MakaPads, distributing them in Ugandan refugee camps. T4T also produces pads for two NGOs, One School at a Time in Uganda and One Girl in Sierra Leone. In addition to the pads, T4T has developed special incinerators for the disposable of degradable waste that function without wood or electricity. They have been installed at schools, hospitals, and clinics.

Impact

MakaPads have improved the health and quality of life of 55,000 refugees in Uganda, increased female school attendance, and reduced the environmental damage caused by sanitary pads. T4T has also created livelihood opportunities for about 250 people from vulnerable groups, including 65 refugees in its factory at the Kyaka II camp. Employees earn up to USD 200 a month.

Scaling Up

T4T has grown over the past few years. Most of its growth has been from bulk orders from UNHCR, but the business has also expanded to Sierra Leone via One Girl.

T4T plans to expand further by strengthening direct distribution in rural areas via sales agents. It is also considering expanding to Kenya, Sudan, and the Democratic Republic of the Congo, all countries in which UNHCR has expressed an interest in setting up factories in refugee camps.

T4T earns a profit, which it keeps low in order to achieve its social goals. The company is very vulnerable, however, as 90 percent of its sales come from a single customer (UNHCR). Efforts to diversify the customer base have only slowly been yielding results. The Ugandan Ministry of Education declined to partner with the company, despite a successful pilot in 12 schools. The perception in Uganda that local products are inferior to imported ones also constrains growth.

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