

**Examining the challenge  
of increasing consumer  
menstrual waste and  
exploring cloth pads as  
a viable alternative in  
the context of rural India.**

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## ABSTRACT

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The project seeks to address the wicked problem of menstrual waste, which is rapidly rising due to the use of disposable sanitary pads and the lack of proper waste management systems in India. The genesis of the idea behind this research is inspired by a foresight scenario in which every menstruating woman in India starts using single-use plastic sanitary pads. Through this exercise, a possible future that emerged, if no further interventions are made, the waste management system will be overwhelmed with the sheer amount of non-biodegradable waste.

The research explores cloth pads as a viable alternative to non-biodegradable single-use sanitary pads. It includes analysis of existing sustainable menstrual hygiene products and barriers to broad adoption of cloth pads. Data was collected through interviews, surveys, and a participatory workshop, which helped to map the landscape of menstrual hygiene in India and to understand the role of different stakeholders within the system.

Further, it explores what directed efforts can provide an impetus for the broad adoption of cloth pads as a sustainable menstrual hygiene product. The document incorporates strategies for developing a more holistic and sustainable approach towards menstrual health management, carefully addressing myths, beliefs, practices, systems, and environments in rural India.

**Key Words: Menstrual Health Management in rural India, Sustainable Menstrual Hygiene, Cloth Pads, Menstrual Waste Management**

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# 01

## BACKGROUND

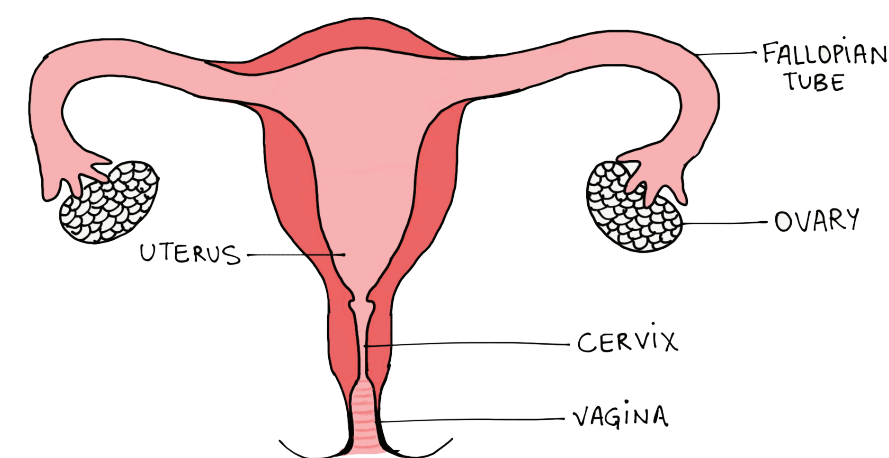


Figure 1: Female reproductive system  
Illustration © Harmanjot Kaur

### I.1 What is menstruation?

Menstruation is a natural part of the reproductive cycle where the uterine lining is shed as blood through a woman's vagina. This happens because of a change in hormones that act as a messenger in human bodies. In females, the ovaries release hormones known as estrogen and progesterone. These hormones cause the lining of the uterus (or womb) to build up and prepare the female body for pregnancy. The fully formed lining can host a fertilized egg. If there is no fertilization, the lining breaks down and bleeds. It usually takes about a month for the lining of the uterus to build up, and then break down. That is

why most girls and women get their periods once a month.

Most girls start to menstruate at the age of 10 to 14. However, it can happen as early as age nine or as late as 15 (Health Link BC, 2018). The onset of menstruation is known as menarche. When someone's menstrual cycles come to an end, it is called menopause and pregnancy is no longer possible. The average menstruating age is from 13 until 51 years. The average menstrual cycle is from three to seven days. That means, on average, a woman endures some 456 total periods over 38 years or roughly 6.25 years with her period (Kane, 2017).

## 1.2 History of menstruation

Women have experienced menstruation since before we fully evolved as a species. Half of the human population undergoes this phenomenon, and still, it is one of the most shrouded and stigmatized natural processes. Across 4,000 years of recorded history and among half a dozen diverse cultures all around the world, there are no written records about this subject (Stockton, 2016). One of the possible reasons behind this might be that male scribes wrote most of the history on behalf of their male rulers who did not consider that women's biology deserved to be mentioned in the documents. The lack of discussion about menstruation made it a mysterious phenomenon, and menstrual taboos were so deeply ingrained in our cultures, beliefs, and histories that it resulted in embarrassment for women for centuries.

Religion has played an enormous role in shaping society's outlook on many subjects. Unfortunately, from ancient times, religion has not been very kind to menstruating women. As an example, ancient Jewish women, while menstruating, used to be physically separated from their families because it was believed that they could contaminate others through their touch. After every menstruation cycle, they had to be blessed by a rabbi (Jewish priest) along with all the other objects they handled during that period. Similarly, Islam also forbade women from offering specific prayers during menstruation and believed that prayers during that period are not counted by God (Stockton, 2016). The following excerpt from the Bible clearly shows why menstruation became such a taboo among masses of people around the world: "...in her menstrual impurity; she is unclean... whoever touches... shall be unclean and shall wash his clothes and bathe in water and be unclean until evening. Leviticus 15" (Druet, 2020).

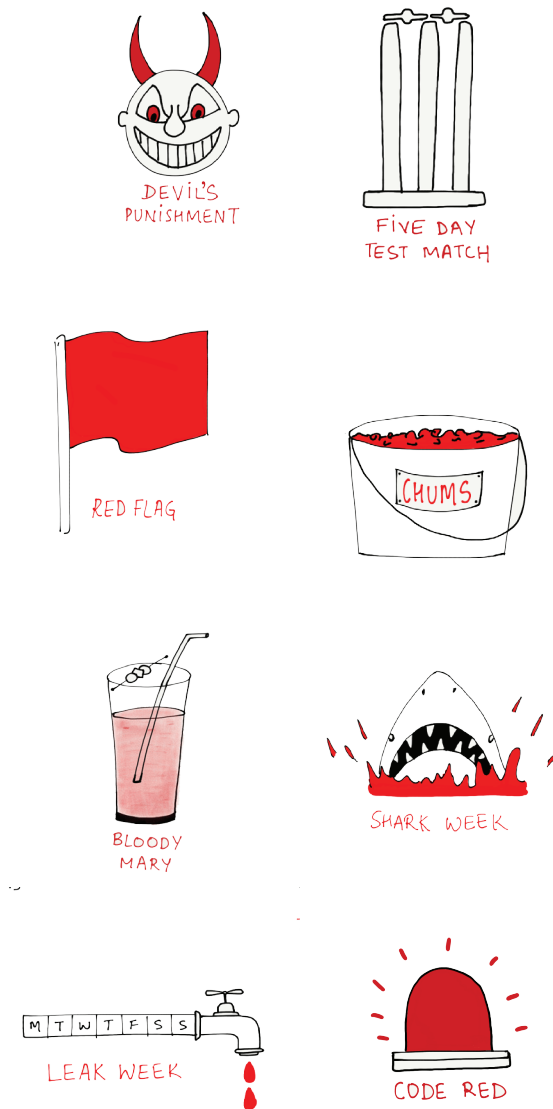


Figure 2: Menstrual euphemisms used in different languages around the world.  
Illustration © Harmanjot Kaur

Moreover, during the 20th-century, theories about menstrual toxicity were also propagated among the scientific community. Some researchers tried to back the presumptions about menstrual negativity with scientific proof. Dr. Bela Schick (1920) coined the term 'menotoxin' after concluding that flowers handled by a menstruating nurse wilted more quickly. However, menstrual blood toxicity was disproven in the late 1950s (Druet, 2020).

Although negative menstrual taboos are nearly universal, there are exceptions. Certain societies have positive menstrual associations and euphemisms. For example, the biggest grass hut of the Mbuti tribe in Zaire, Africa, is the menstrual hut, where the girls go to have their first period, accompanied by other girls and female relatives. "Menarchal girls" live there for a year. During this time, older women bring these girls food and teach them about their bodies. Having a period is considered powerful in the Mbuti tribe. After a year, the girl sings around in the entire forest to proclaim her womanhood before returning to the village (Hales, 2000). The ancient Greeks mixed menstrual blood with wine and spread it over the field every spring to increase the fertility of the soil (Stockton, 2016).

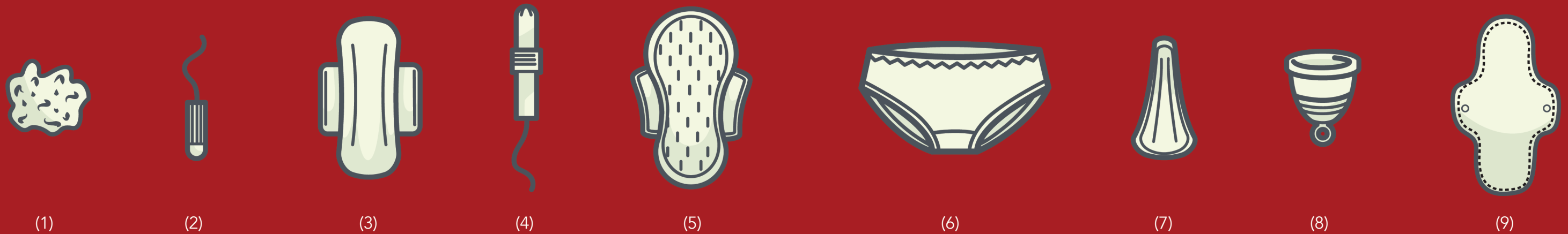
Furthermore, menstrual blood has deep symbolism, and many artists throughout history have used menstruation to highlight issues of gender, labor, and inequality. Judy Chicago (1972) created "Menstruation Bathroom", an installation featuring a white bathroom with shelves of menstrual products, an overflowing trash can full of used sanitary pads, and a clothes line of pads leaking blood onto the otherwise spotless floor. In the work of Rhine Bernardino, "Working from nine to five," during the performance, Bernardino sat motionless on a chair from nine a.m. to five p.m. holding a single item: a bottle of her menstrual blood. She only moved once

at midday to remove her menstrual cup and emptied it into the bottle. The performance represents invisible labor performed by menstruating bodies, which, despite physiological symptoms and stress experienced during periods, are forced to comply with the expectations of an average working day (Chen, 2020). In 2019, *Period. End of sentence*, a short documentary about women trying to make feminine hygiene supplies readily available and end the stigma surrounding menstruation in India, won an Oscar.

From complete silence to an estimated \$33 billion USD consumer market by 2025 (Grand View Research, 2019), the ways we deal with menstruation has grown by leaps and bounds. Although the progression in feminine hygiene products is backed up by science, the use of these products is still mostly surrounded by taboos. Hence, much needs to be done in creating awareness and changing people's mindset towards the existing taboos.

### 1.3 Timeline for menstrual products

Ancient practices of menstruation in different cultures used diverse natural materials to absorb menstrual blood. Not much is written about these practices in literature, but it is speculated that women used materials like cotton, paper, papyrus, grass, sea sponge, and pieces of wood covered with cotton (Bushak, 2016). The research into early modern Europe by Sara Read (2013) stated that most women just bled onto their clothes. In later historical periods, rags were put between the legs and washed and dried for reuse. Hence the term “on the rag” was coined (Hufnagel, 2012). Today, there are a wide range of options for handling menstrual cycles, from period underwear to menstrual cups, but the standard tampons and maxi pads still predominate the feminine hygiene industry (Kotler, 2018). The following pages represent a timeline of the evolution of menstrual products across the 19th, 20th, and 21st centuries.



Sequence of illustrations labeled (1) to (9):  
Sea sponge, tampon, disposable sanitary pad,  
tampon with applicator, maxi size disposable  
sanitary pad, period panties, labia pads,  
menstrual cup, and cloth pad.  
Illustration source: stock.adobe.com,  
free vector by Ehidna

As seen in the following timeline, the most popular products throughout history were variations of pads and tampons. As the convenience and ease of use grew around various menstrual products, so did the issue of waste disposal. Today, most of the pads and tampons are made of super absorbent polymers (SAP), and they take hundreds of years to decompose. As concern about the environmental impact of disposable products is increasing, many people are returning to reusable and organic methods, such as cloth pads and silicone cups. The red graph in the background of the timeline shows the increase in usage of non-biodegradable menstrual options until the late 1990s, after which trends towards sustainable menstrual innovations started. Today, people are learning to embrace free bleeding with period panties and are moving towards a zero-waste lifestyle by adopting menstrual cups and cloth pads. Although menstruation has always been a concern related to women, inclusivity is another noticeable shift in the market. Companies are becoming more inclusive in terms of language and product development. Advertisement campaigns are shifting to focus more on all bodies that get periods, including trans men and gender non-binary people.



For sources and citations of the following timeline refer appendix B- section a and section c.  
For image sources refer appendix B- setion b.

1883

**FARR MENSTRUAL RECEPTACLE**

Farr menstrual receptacle was a soft rubber cup attached to a belt. The cup was designed to be inserted into the vagina reaching the opening of the uterus without putting pressure onto the vaginal walls. The menstrual fluid flowed into the receptacle and was cleared by removing the cup, without removing the instrument. The cup was supposed to be cleared before going to bed.[1]

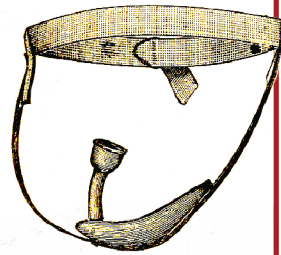


Image 1: Farr menstrual receptacle  
© Arallyn

1910

**SANITARY BLOOMERS**



Image 3: Advertisement poster for sanitary bloomers

An early version of sanitary bloomers, made from rubber, were invented in 1910. These bloomers, as advertised, prevented stains and could be ordered by mail. The concept evolved with the introduction of new materials and designs.[4]

1921

**KOTEX PADS**

Kimberly-Clark, an American paper products company produced bandages for World War 1 from a material made of wood pulp called cellucotton. Cellucotton was a better absorbent than cotton and was less expensive. Nurses in France used cellucotton to create makeshift pads for personal use. When the army nurses wrote back to the company about their experience with cellulose bandages as a menstrual blood absorbent, the company started to make new, highly-absorbent disposable sanitary napkin under the brand named Kotex.[6]



Image 6: Advertisement poster for Kotex pads

1940

**DIGITAL TAMPON**

Tampons that do not come with an applicator are called digital tampons. "In the 1940s in Germany, gynecologist Judith Esser-Mittag invented a digital tampon, called o.b., which gained popularity in western Europe. It wasn't until the mid-seventies, that Johnson and Johnson (which then owned o.b.) introduced o.b. digital tampons to the US." [8] (Spinks, 2018)



Image 7: Tampon without applicator

1969

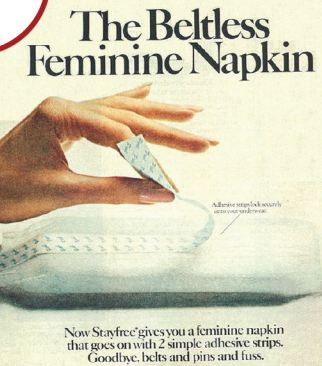


Image 9: Beltless adhesive pad advertisement by Stayfree

**ADHESIVE PADS**

The first maxi pad with an adhesive strip was made in 1969 by Stayfree. It was a huge success and put an end to menstrual belts.[9]



Lister's Towels, produced by Johnson & Johnson, were the first disposable sanitary napkin available for sale. Due to taboos and stigma around menstruation, customers hesitated to purchase product openly. Hence, the product was a commercial failure.[2][3]



Image 2: Lister's Towel sanitary napkin  
© Johnson & Johnson

1897

**SANITARY APRON**

The sanitary apron was a leak-proof apron worn backwards which had a pad holder in front. The wearer pinned the absorbent cloth onto the inner side of the holder. The apron was worn under the dresses. Since it was made of waterproof materials it kept blood away from dresses and protected them from stains.[5]

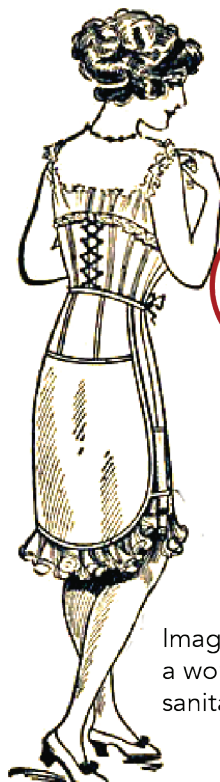


Image 4: Drawing of a woman wearing sanitary apron

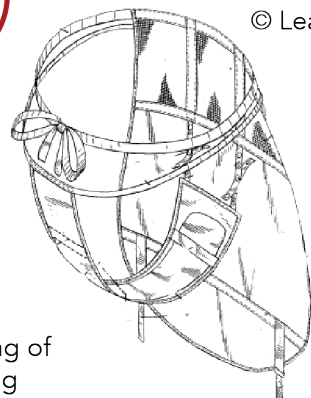
1914

Image 5: Illustration of a sanitary apron  
© Leah G Milkes

1931

**TAMPAX**

In 1929, Dr. Earle Haas created the tampon and patented the technology. Kotex passed on the patent, but businesswoman Gertrude Tenderich acquired it and formed the company Tampax Sales Corporation.[7]



1937

**TASSETTE MENSTRUAL CUP**

The first menstrual cup was patented and produced by a woman named Leona Chalmers. The cups were made of aluminum or hard rubber. The product was not a big success because most people preferred not to touch anything bloody. Rebranded as Tassette in 1950, Chalmers updated the menstrual cup, using softer materials, but it was not popular as women were not open to the idea of using a menstrual cup.[4][9]



Image 8: The cover of an instructional manual for the Tassette, possibly from the early 1960s.  
© Kelly O'Donnell

1960



**BETTER THAN NAPKINS, BETTER THAN TAMPONS.**  
Because you never have to change more than twice in 24 hours.

Image 10: Advertisement poster for the Tassaway cup in The Los Angeles Times from 1971  
© Kelly O'Donnell



1970s



Image 11: Commercial disposable sanitary pad

### PLASTIC APPLICATOR

In the 1970s, Playtex, an American undergarment, baby products, and feminine products company introduced plastic applicators.[8]

### SUPER ABSORBENTS

Super absorbent polymer (SAP) was commercially used for the first time in the early 1970s. SAP was originally intended to be used for soil modification applications. Instead, it was first used for disposable hygienic products.[11]

1980



Image 12: The Keeper menstrual cup © The Kepper Inc.

### THE KEEPER

In the late 1980, with the launch of The Keeper, menstrual cups were reintroduced. This cup is made of latex rubber and is available today.[10]

1993

### GLAD RAGS

Founded in 1993 by Brenda Mallory and Karen Paule, Glad Rags is based in Portland, Oregon, and produces reusable cloth menstrual pads.[13]

Image 14: Cloth pads © Glad Rags



2002

### MOON CUP

In the beginning of 21st century, medical grade silicone, was integrated into the design of menstrual cups. Hence, women with latex allergies could also safely use menstrual cups. In 2002, Mooncup, the world's first reusable silicone cup, was launched by two women in Brighton, UK.[15]

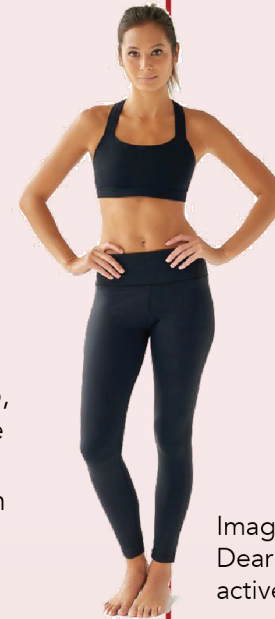


Image 16: Woman wearing Dear Kate's Go Commando active wear leggings © Dear Kate

2014

### GO COMMANDO ACTIVE WEAR

Dear Kate, an undergarment brand that began designing period panties in 2012, developed a new product line in 2014 specially targeting active user groups such as athletes, dancers, and gym goers. The absorbent technology is built into the fabric and thus does not require the user to wear other menstrual products like tampons or pads.[18][19]

2017



Image 18: Resuable tampon applicator © Dame

### REUSABLE TAMPON APPLICATOR

Dame is the first reusable tampon applicator in the world that seeks to reduce the environmental effects of sanitary goods. The company also sells organic cotton tampons and has received a Carbon Neutral Plus accreditation.[20]

### EXTRACTION METHOD

The extraction method was introduced by a women's self- help clinic in Los Angeles.[22] The innovation came from research on safe abortions. Women used a suction device to evacuate all uterine content, shortening the length of menses from about five days to just a few minutes. The method required the physician to perform the procedure which made it costly. Additionally, the lack of medical data examining probable long-term effects prevented it from becoming popular.[4]

1975

Image 13: Rely tampon packaging box



### RELY TAMPON

In 1975, P&G began test marketing a futuristic new tampon called Rely. It was made of entirely synthetic materials and was engineered to be ultra absorbent. It turned out to be problematic as synthetic components served as a petri dish for bacteria. In 1980, Rely tampons were recalled after a total of 812 cases related to Toxic Shock Syndrome (TSS) were reported.[12]

### MENSTRUAL DISC

The first menstrual disc was first introduced in 1994 after 10 years of R&D by Audrey Contente at Ultrafem, Inc. In 1998, the product was acquired by Evofem. The company rebranded the product and called it Insteada Softcup. The company was not able to sustain due to price pressure from retailers.[14]

1994

### PERIOD PANTIES

Period panties are a layered combination of special fabrics designed to pull liquid away from the body and trap it inside the underwear so it does not leak out. Dear Kate, Thinx, and Kinx are some of the leading brands of period panties.[16][17]

2012

Image 15: Period panties © Thinx



### SOFTCUP

In 2016, The Flex Company acquired menstrual disc brand- Insteada softcup. The company introduced new packaging and changed the name of the product from Insteada Softcup to 'Softcup'. In 2018, the company renamed Softcup to 'Softdisc'. [14]

2016

Image 17: Softdisc © The Flex Company



2018

### GENDER NEUTRAL MENSTRUAL CUP

Gender is not binary, not all women have periods and not all people who have periods identify as women. As society begins to understand this, some companies are beginning to adjust their language and design to meet the needs of a broader spectrum of people. UltuCup, creator of a new gender-neutral menstrual cup, is one such brand.[21]



Image 19: Gender neutral menstrual cup © Ultucup

1970

"Priya, 13 years old, lives in peri-urban Kanpur. Despite having limited disposable income, Priya's mother sends Priya to coaching classes (after-school private lessons) in addition to school. Priya does not like going to school on the days she menstruates because the school toilets are dirty. More importantly, Priya is frustrated at the fundamental shifts occurring in her life: "I wish it (menstruation) would not happen to me. Since I got my period, my mother told me I cannot play outside, I should come home straight from school, I should not sleep next to my brother, and I should behave like a grown-up."

(Menstrual Health in India, 2016, pg 4)

## I.4 Landscape in India

Menstruation in a developing country like India is surrounded by myths and taboos, which have resulted in widespread proliferation of unhygienic practices. Many menstruating women are still subjected to some of the worst forms of discrimination because they are regarded as impure. The cultural shame attached to menstruation and a shortage of resources stop women from having confident and dignified periods. Some even believe that frequent pregnancies would help curb problems of menstrual hygiene (Rai, 2018). The following headlines represent the prevailing taboos and current culture surrounding menstruation in India.

### Cyclone Gaja: India girl segregated during period dies, 21 November 2018



Image 20. Site of destroyed houses due to cyclone  
Image credits © BBC

"A 14-year-old girl died in India's southern state of Tamil Nadu due to a cyclone after being forced to sleep separately because she was menstruating." (BBC News, 2018)

Source:  
<https://www.bbc.com/news/world-asia-india-46286284>

### Villages of womb-less women, 5 July 2019

In 2019, it was revealed by Indian media that in the western state of Maharashtra, thousands of young women have undergone surgical procedures to remove their wombs in the past three years. In a substantial number of cases, they have done this so that they can get work as sugarcane harvesters as they cannot afford to pay the penalty of missing a day due to their periods. Most women in these areas are married at a young age, and many have two to three children by their mid-20s. Because doctors do not tell them about the problems they can face if they undergo a hysterectomy, many believe that it is safe and normal to remove their wombs.

Source:  
<https://www.bbc.com/news/world-asia-india-48836690>



Image 21. Women working in sugarcane field  
Image credits © Reuters



**An Indian girl kills herself over menstruation shaming, 31 August 2017**

A 12-year-old killed herself after a teacher humiliated her for a period stain on her uniform, reflecting the taboo of menstruation in modern India.

Source: <https://www.bbc.com/news/world-asia-india-41107982>

Image 22.



Wall graffiti on menstruation #Bleed with dignity Image credits Davis Talikdar © Getty Images

**Woman trying to visit Indian temple attacked, 17 October 2018**

Sabarimala temple has become one of the most polarising holy sites in India since the Supreme Court ruled in September of 2018 that women of all ages should be allowed to enter. Previously the temple had banned women of childbearing age, between 10 and 50, said to be out of respect for Ayyappan, the celibate Hindu deity to which the temple is dedicated. Women who tried to enter the temple were attacked. The temple's chief stated that he would allow women to enter only after a machine was invented to detect if they were "pure", meaning that they were not menstruating.



Image 23. Police trying to control a protest to enter temple, Image credits © Prakash Elamakara



Image 24. Women participating in Ready to Wait campaign, Image credits © The Week India

Source:   
 1. <https://www.bbc.com/news/world-asia-india-45885996>   
 2. <https://www.theguardian.com/commentisfree/2019/jan/03/the-guardian-view-on-indias-temple-dispute-faith-and-politics>   
 3. <https://www.theweek.in/news/india/2019/11/15/kerala-govt-refuses-to-offer-protection-to-women-wanting-to-enter-sabarimala-temple.html>

**68 college girls in Bhuj, Gujarat were forced to strip to prove they were not menstruating. 16 February 2020**

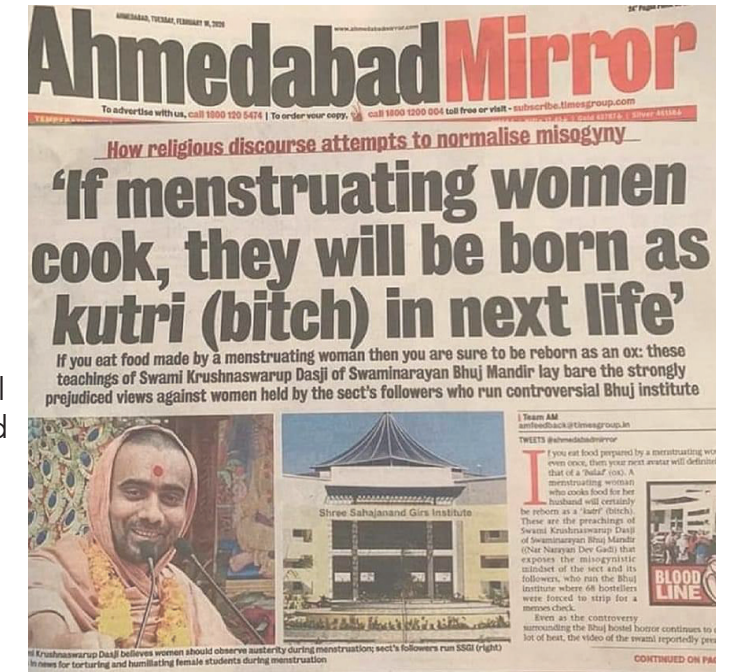
Sixty-eight college girls in Bhuj, Gujarat, were forced to strip to prove they were not menstruating. The act of humiliation took place after the hostel warden complained to the principal that some of the residents had been violating religious norms, specifically the menstruating female students. According to the institute's norms, menstruating women are prohibited from entering the temple and kitchen. They are not even allowed to touch other students. One of the students told BBC that the hostel maintains a register where they are expected to enter their names when they get their periods, which helps the authorities to identify them. However, for two consecutive months, not one student had entered her name in the register - perhaps not surprising considering the restrictions they have to put up with if they do.

Source:   
 1. <https://www.bbc.com/news/world-asia-india-51504992>   
 2. <https://timesofindia.indiatimes.com/city/rajkot/68-girls-in-bhuj-college-made-to-pass-strip-test/article-show/74125443.cms>



Image 26. Spilled bottle of pills, Image source © drugabuse.com

Image 25.



Newspaper headline on how religious discourse attempts to normalize misogyny, Image credits © India Times

**Unlabelled drugs for period pains, 5 July 2019**

Women working in the multi-billion dollar garment industry in Tamil Nadu allege that they have been given unlabelled drugs at work instead of a day off when they have complained of period pain. There are about 300,000 women employees in the company, and all of the 100 women who were interviewed said they had received unlabelled drugs one or more times.

Source: <https://www.bbc.com/news/world-asia-india-48836690>





Image 27. Brainstroming session  
Image credits © Harmanjot Kaur

### a. Low accessibility and affordability

India, with the second-highest population in the world, has the highest number of 10 to 24-year-olds, with an estimated total of 356 million (Keatman et al., 2017). The sheer population size and fast-developing economy places India in a challenging position in terms of resource management to meet the needs of the people. The National Family Health Survey (2015-2016) estimates that of the 336 million menstruating women in India, about 121 million (roughly 36%) women are using sanitary protection.

On average, 70% of women in India say their families cannot afford to buy menstrual hygiene products; hence they use alternatives like old fabric, rags, or even sand to manage their menstrual flow (Nielsen & Plan India, 2010). Girls and women from lower-income groups cannot afford to buy pads in bulk for themselves. The government is providing free, subsidized or low-cost sanitary pads to the rural population through schools and anganwadis (government-sponsored mothercare and childcare centres in rural areas). This initiative is helping women and girls to deal with menstruation in the short term. It is also making them reliant on single-use pads without sufficient knowledge on how to use them and without proper disposal facilities. Moreover, subsidized or free products provided by the government are of poor quality due to a low-cost procurement strategy that overlooks standards and quality.

### b. Poor menstrual hygiene

Menstruating women face multi layered barriers to effective Menstrual Hygiene Management (MHM) due to various social and economic factors. Roughly 120 million menstruating adolescents in India experience menstrual dysfunctions, affecting their routine chores (Spot On, 2015).

According to the World Health Organization (WHO), cervical cancer is the fourth most common cancer among Indian women with estimated 570,000 new cases in 2018. China and India together contributed more than one-third of the global cervical cancer burden, with 106,00 cases in China and 97,000 cases in India, and 48,000 deaths in China and 60,000 deaths in India (Arbyn, 2020).

In September 2017, in the Indian state of Maharashtra, health workers collected soiled pads from 500 women in villages in order to diagnose the possibility of cervical cancer. Twenty-four were found positive and were advised for further diagnosis (Parameswaran, 2017). According to one of the interviewees, Rajasi Kulkarni, who is an early childhood and MHM educator, "Girls treat sanitary pads as a special commodity and try to save them for special occasions by wearing a single pad for a longer time. Girls lack sufficient knowledge on proper usage of the product and health risks associated with sanitary pads if worn for longer durations." Such unhygienic practices can make women's bodies prone to many infections. "Spot On", a report by Dasra (2015), indicated that Reproductive Tract Infections (RTI) are 70% more common among women who use unhygienic practices and materials for managing their menstrual cycles.

### c. Taboos and superstitions

In India, menstruating women have a unique position somewhere between "sanctity and seclusion" (Deepak, 2018). During her period, although she is taken care of, she is also excluded and deemed dangerous to participate in society. This notion of impurity is propagated by superstitions and enforces a system of fundamentally patriarchal control that operates in all spheres of Indian society. Women are forced to stay away from their children, not allowed to enter the kitchen or worship in a temple during periods. Furthermore, the menstruation blood itself is



seen by many as a prop for black magic.

Preparing pickles is an age-old ritual that is primarily carried out by women in India. Pickle is an integral part of the everyday diet, and menstruating women are not allowed to touch the pickle jar. It is believed that menstruating woman's touch sours the pickle. A campaign called *Touch The Pickle* started by P&G in 2015 resonated well with modern Indian women as it helped to start an open conversation about breaking out of period-related taboos and challenge the age-old superstitions (Whisper Touch The Pickle, 2015)

Across India, women and girls typically use cotton cloths, sanitary pads, or other absorbents, rather than products meant to be inserted into the vagina such as tampons or menstrual cups. These products are perceived as a threat to the girl's virginity. Moreover, numerous superstitions associated with menstruation are related to women's ability to reproduce. It is believed that if others saw a menstruating woman's blood-stained cloth or pad, they could curse the menstruating woman through an "evil eye" and as a result, the woman would have heavy bleeding, pain, or even become infertile. It is also believed that if a snake smells or slithers on a woman's used pad, then it will become impossible for her to conceive (Garikipati & Boudot, 2017).

Even though there are negative taboos, certain sections of the society operate with positive menstrual associations. A tribal community in Nagaland, India, believes that a woman has regenerative powers during her period. For example, if she touches a plant, it will bloom and grow better (Deepak, 2018). This belief shows that taboos are variable and have positive as well as negative connotations even within the Indian society.

Figure 3 represents various restrictions imposed on women and girls during menstruation in different parts of India.

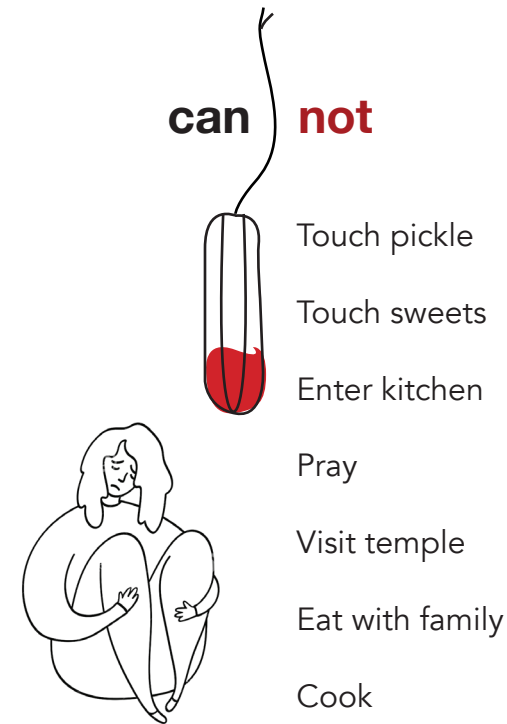


Figure 3: Restrictions during menstruation in different parts of India  
Illustration © Harmanjot Kaur

#### d. Lack of infrastructure

According to Dasra's 2015 report, "Dignity for Her", girls tend to miss school due to the inability to manage their periods at school. This absenteeism eventually contributes to almost 23% of girls dropping out of school upon reaching puberty, which weakens their potential as individuals and future workers. According to a UNICEF (2012) WASH report on schools in India, 63 million adolescent girls in India live in homes without toilets, and two out of five schools do not have separate toilets for girls. Qualitative research conducted in 2018 in six government schools in Delhi showed that 40% of girls remained absent from school during their menstruation. In the same study, 65% of girls reported that menstruation affected their daily actions at school, and they had to miss their examinations and classes as a result of pain, shame, anxiety about leakage, and staining of their uniform (Vashisht et al., 2018).

School absenteeism is significantly associated with the type of absorbent used, lack of privacy at school, restrictions imposed on girls during menstruation, mother's education, and source of information on menstruation. Lack of adequate facilities also creates obstacles for female teachers as they remain absent or are unable to provide adequate attention to students during their periods. Girls experiencing menstruation need not only supplies, and privacy to change and dispose of their menstrual products, but also an environment free from taboos and social restriction.

#### e. Lack of awareness

In India, mothers are the most immediate source of information and assistance during menstruation for young adolescent girls (Keatman et al., 2017). According to a cross-sectional study on awareness regarding safe and hygienic practices amongst 300 school-going adolescent girls (10 to 19 years in age), carried out in a rural area of Wardha District in 2010, the majority of the girls received knowledge regarding menstruation from their mothers (41%), followed by media (24%), and friends (19%) (Mudey et al., 2010). Van Eijk et al. (2016) produced a study that focussed on menstrual hygiene management among adolescent girls in India. The data was collected from 138 studies involving 97,070 girls. A key insight from the data revealed that only 55% of the girls regarded menstruation as normal, and 52% of the girls stated that their mothers were their primary source of information about menstruation.

A study by UNICEF in 2015 indicated that 70% of mothers in India consider menstruation "dirty". This means that mothers with this view are likely to pass down the same ideology to their daughters. Approximately 71% of adolescent girls remain unaware of menstruation until menarche, the first occurrence of their

**"I was 14, and I did not know what it was. My mother died of cancer, and I was 100% sure that I was bleeding because I had cancer."**

Neelam, School student, Gwalior, India (Spot On, 2015, pg.14)

periods (Keatman et al., 2017). Twenty-three percent of girls do not know that uterus is the source of bleeding (Eijk et al., 2016). Instead of receiving proper education about the subject, false information and religious taboos are transferred that entrench fear in their minds. Therefore, mothers, female relatives, and teachers play a crucial role in the lives of adolescent girls. They can either choose to perpetuate cultural and religious taboos, such as the belief that menstruation is the body disposing of impure blood, or positively provide proper information on the process. Many NGOs operating in the sector of menstrual health such as Baala<sup>[1]</sup>, Goon<sup>[2]</sup>, and Jatan Sansthan<sup>[3]</sup> are working towards distributing cloth pads and educating young girls regarding menstruation. Additionally, creative educational content like Menstrupedia<sup>[4]</sup> comics is assisting school kids to discover menstruation in a novel and friendly manner.

## f. Commercialization of the problem

India has been a consumer hotbed for many multinational companies because of the sheer untapped market size and the economic opportunity it provides. Foreign companies manufacturing sanitary pads have been no exception. Although sanitary napkins are now a popular product, its market did not exist until recently in India and had to be created.

According to Sohini Chattopadhyay (2016) analysis of the advertisement patterns in Indian newspaper archives showed that the sanitary pad was first targeted at the upper and middle class in the early 20th century. Until 1947, when India was a British colony, the newspaper ads for sanitary pads were mainly directed towards the Anglo-Indian population. After India's independence from British rule, the newspaper ad analysis by Chattopadhyay revealed that Kotex, who was selling pads in India since 1929, tried to create an association with modern Indian women as its new customer segment. The economic liberalization of India in the 1990s eventually saw the broadening of the consumer base, and more multinationals jumped into the Indian consumer goods business. In 1990, Johnson & Johnson was a significant player with multiple brands like Carefree, OB Tampons, and Stayfree. There were signs of competition in 1996 when Kotex came in with tempting price tags, almost halving the price of the ten-pack sanitary packet offered by other brands. However, in 1998 it became apparent that Kotex was trying to draw non-users of sanitary pads. A Kotex newspaper commercial showed a mother using a cloth and telling her daughter to use Kotex pads instead (Chattopadhyay, 2016).

The need for menstrual products was created by lowering the price of pads and running massive marketing campaigns by partnering with educational institutions. A century of innovative and aggressive

advertising was able to convince a significant portion of Indian consumers to shift from using cloth to disposable pads. The perception that cloth is not safe to use was established, and now the market is being saturated with one kind of menstrual product: disposable pads. As a result, it is leaving a limited choice for consumers. According to market research by IMARC (2019), the sanitary napkin market was at a value of \$511.5 million USD in 2018 and is estimated to reach \$992.8 million USD by 2024 in India. The adoption of disposable pads is increasing in rural areas and posing a threat to the waste management system in India.

## g. Increasing consumer waste

Urban expansion in India is happening at a speed quite unlike anything the country or the world has seen before. "For the first time in India's history, five of its largest states will have more of their population living in cities than in villages" (McKinsey and Company, 2010). The migration of population to urban cities is providing easy access to consumer goods. The availability and high usage of these goods put pressure on the city resources as well as the waste management system, which has not evolved at the same pace.

According to Menstrual Health Alliance India (2017), an estimated 121 million girls and women are currently using an average of eight disposable (non-compostable) sanitary pads a month. This usage means the waste load generated in India is estimated to be 1.021 billion pads disposed of monthly or 12.3 billion pads disposed of annually. It all adds up to a total of 113,000 tonnes of menstrual pad waste annually (Malaviya, 2019). It is estimated that India generates "62 million tonnes of municipal solid waste per year. Only 43 million tonnes (MT) of waste is collected, 11.9 MT is treated, and 31 MT is dumped at landfill sites" (Lahiry, 2019). The weak waste management system

in India is exacerbating the problem of ever-increasing consumer waste. Due to the lack of adequate waste disposal, segregation, and processing mechanisms, tons of soiled pads end up either in landfills or secretly burnt, which releases harmful dioxins into the environment.

In Pune, India, Solid Waste Collection and Handling (SWaCH) workers hand-segregate 20,000 kilograms of dirty diapers and sanitary pads daily. This segregation exposes them to various diseases, like staphylococcus, hepatitis, e-Coli, salmonella, and typhoid (Agarwal, 2017). Additionally, the stress of handling people's waste daily has many more ramifications. The Red Dot campaign, started in Pune in 2017, helped waste pickers to segregate menstrual waste without unwrapping and touching it. This way of disposal of menstrual waste prevents waste pickers from direct exposure to menstrual blood and hence infections related to it. Residents had to enclose their menstrual waste in paper and put a red dot over it before disposing of in the bin. Based on its local success, the city municipality embraced the campaign as a policy. However, it was not successful at a large scale due to a lack of awareness among residents and waste pickers throughout the city.

Another popular way of handling menstrual waste in schools, railway stations, and other public utilities is by using a small-scale incinerator. A menstrual incinerator is an apparatus for burning soiled disposable pads at high temperatures until they are reduced to ash. They are installed in lavatories of public places like railway stations and schools to burn the pads at high temperature. While incinerators offer an immediate and convenient way of dealing with menstrual waste, most of the installed incinerators do not adhere to emission norms set by the Central Pollution Control Board. As a result, they release toxic fumes into the immediate environment due to

inefficient combustion, potentially affecting the health of women and girls.

Research is being done on better ways to incinerate menstrual waste. One such example is GreenDispo, an eco-friendly incinerator developed by the Council of Scientific and Industrial Research (CSIR) and National Environmental Engineering Research Institute (NEERI), India. It has improved efficiency and consumes less power. Another innovation in the domain of menstrual waste management is PadCare Labs Saneco disposal machine. The machine is small and can be easily fitted in toilet cubicles in the same way as hand driers are installed in washrooms. This enables menstruators to drop the used sanitary pad through the open flap on the top of the machine.

Ajinkya Dhariya, Founder of PadCare Labs, explains that the sanitary pad disposal machine is equipped with a mechanical shredder, chemical disinfectant, and segregation compartment for waste. When the device is switched on, it "removes odors, disintegrates, and decolourizes the sanitary waste" (WSSCC, 2020). While the solution seems fascinating, its effectiveness has not yet been tested for the mass market. Thus, it has not been proven as a robust strategy for reducing the impact of menstrual waste on the waste management system in India.

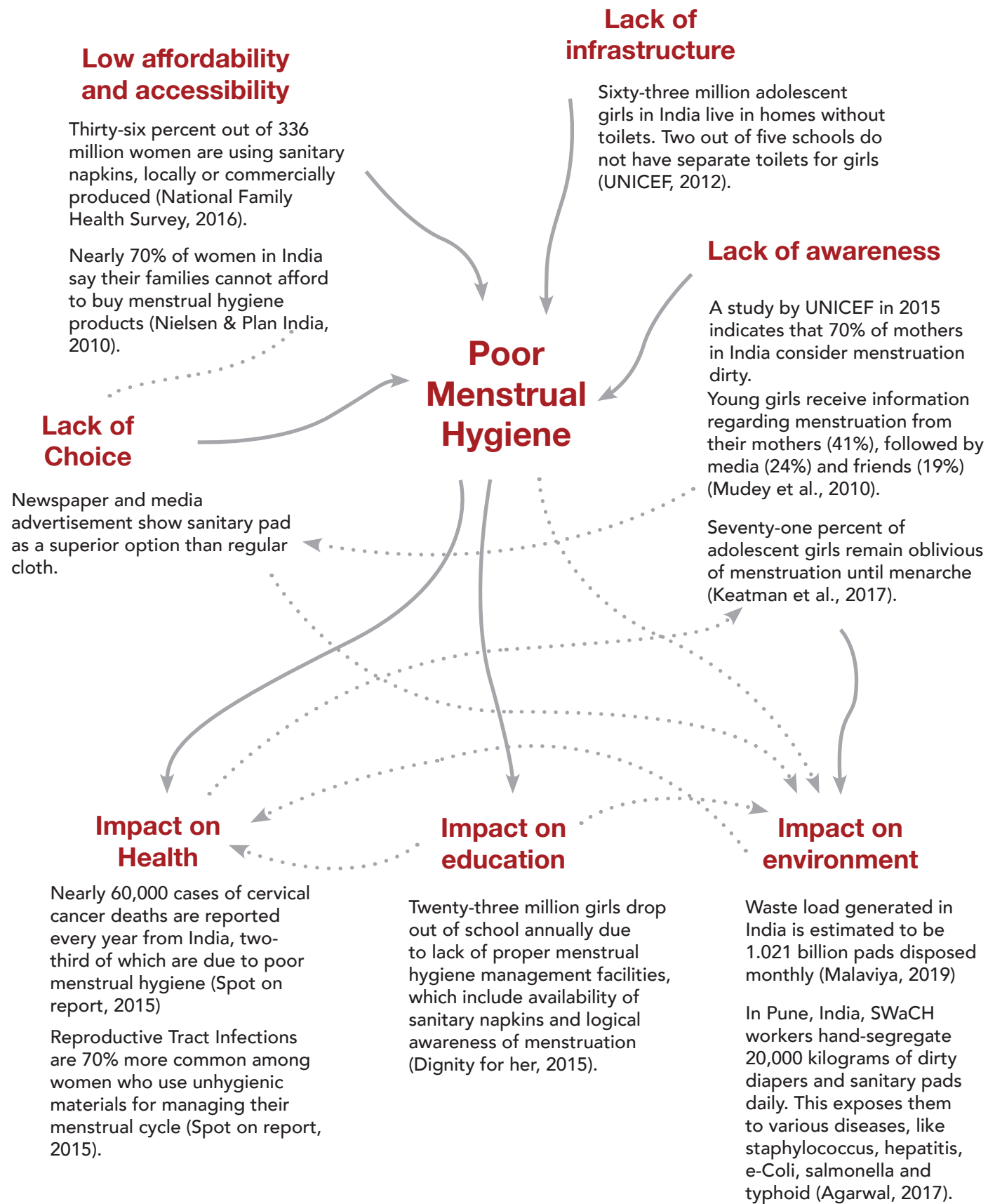


Figure 4 gives an overview of the landscape of menstrual hygiene in India. Low affordability and accessibility, absence of proper infrastructure, lack of awareness, and hence the shortage of choice is leading to poor menstrual hygiene in India. These compounding factors are impacting the education of adolescent girls, the health of women and girls, and the environment.

To conclude, surveys by the Ministry of Health discovered that most problems related to menstrual hygiene in India are preventable but are not prevented due to low awareness among people and poor menstrual hygiene management. Many government schemes are directed towards creating awareness, providing menstrual supplies, clean washrooms, and educating women. These initiatives are helping to solve the issue of menstrual care in India at different levels. However, a full systems-level approach is required to create synergy between numerous efforts being undertaken by schools, NGOs, and the government to address the issues of menstrual health and hygiene at a large scale.

Figure 4: Overview of Landscape of Menstrual Hygiene Management in India  
 Illustration © Harmanjot Kaur



## 1.5 Journey of a pad

According to Olgaalex (2020), it has been estimated that the average woman disposes of 11,000 to 17,000 sanitary products in her lifetime. According to Van Eijk et al. (2016), 45% of the Indian users throw their menstrual blood absorbents such as commercial pads, cloth, or cotton with routine waste. It is either sent to landfill sites, burnt in open areas, or destroyed at incineration facilities in India.

In big Indian cities such as Delhi, Mumbai, and Pune, the menstrual waste is segregated manually and sent to incineration facilities where it is destroyed under controlled conditions to prevent the release of harmful gases into the environment. However, due to the lack of proper waste management system, only a fraction of menstrual waste reaches these incineration sites. In some regions where there is no proper municipal waste collection system, pads are burnt in the open, releasing harmful dioxins into the air. Furthermore, in rural India, 23% percent of users throw their menstrual waste in open space, rivers, wells, lakes, or on the roadside, 17% burn their menstrual waste, and 25% bury their menstrual waste in open areas or public spaces (Van Eijk et al., 2016). Nearly 9% of users flush down their menstrual waste, which blocks the pipes, and because of the overload and/or failure of sewage systems, this waste often ends up in water sources, seas, and oceans. Sanitary pads have non-biodegradable components and take years to decompose. It means that every single pad that is thrown today will be somewhere polluting the planet for generations to come.

Over 1 billion non compostable sanitary pads are making their way to urban sewerage systems, and landfills, rural fields and water bodies in India every month (Malaviya, 2019). The following illustration represents different ways in which Indian women dispose of their menstrual absorbents according to Van Eijk et al., (2016).

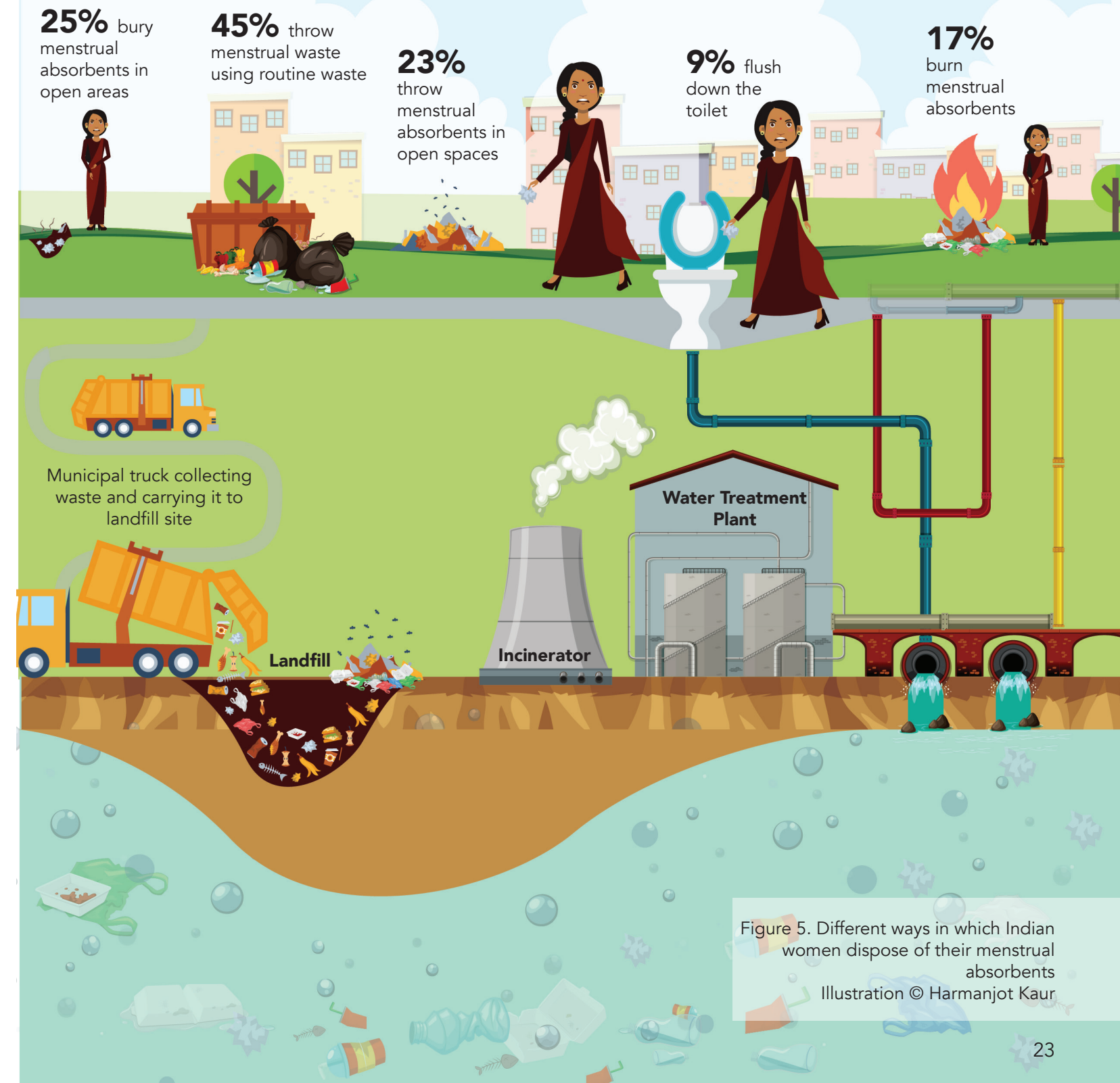






Image 28. Background image for sanitary pads, Source: Freepik.com

## Health risks of disposable sanitary pads

There is a growing body of evidence suggesting that feminine hygiene products have plastic chemicals that are contaminating the environment as well as users. "Conventional sanitary pads are made up of up to 90% crude oil-based plastic and can contain associated plasticizing chemicals like BPA and BPS, as well as petrochemical additives" (Olgaalex, 2020). According to HEJSupport, a non-profit organization, pad manufacturers are not legally bound to report all the ingredients in their goods due to the gaps in the regulations and associated international instruments of trade. These international instruments are the laws, treaties, protocols, and policies developed for handling trade and legal framework between different countries. In India, menstrual products are regarded as "medical products", and by law, the companies are not required to disclose all the ingredients (Times of India, 2018).

The big corporations making menstrual pads have succeeded in making consumers believe that disposable products are most convenient to use and do not have any health risks. In August 2014, Women's Voices for the Earth (WVE) <sup>[5]</sup>, a non-profit environmental organization commissioned testing for four types of Always menstrual pads. Carcinogens, as well as reproductive and developmental toxins were found in all four types of pads. According to the research published by C.L. Park et al. (2019), disposable sanitary pads have a significantly higher concentration of volatile organic compounds (VOCs) such as methylene chloride, toluene, and xylene than in everyday commercial plastic products. The research points out that since "sanitary pads remain in direct contact with external genitalia for an extended period, there is a probability that a considerable amount of VOCs could be absorbed into the reproductive system." The increasing use of plastics and chemicals in sanitary pads has slowly but surely affected the health of the women. In tropical countries, the humidity and high temperatures make it extremely uncomfortable for women to wear a synthetic product between their thighs throughout the day. The use of plastic pads is associated with increased skin problems in the groin area, including rashes, skin irritation, and contact dermatitis (Wiwanitkit, 2009).

To sum up, disposable sanitary pads have been advertised widely since over the past two decades in India. Due to ease of use, easy availability, and low maintenance, they conveniently became a regular favorite. With an increase in demand, the production skyrocketed. Disposable sanitary pads do solve many issues related to women's hygiene; however, they created newer challenges to be overcome. It is essential to understand the traditional practices of marginalized women in India before introducing them to products such as disposable sanitary pads without providing adequate information on their use and facilities for disposal. Giving out free sanitary pads to support the menstrual needs of women is not a sustainable solution in the long term. Due to the health and environmental challenges of disposable plastic pads, it is necessary to find better sustainable alternatives.

As people are becoming more environmentally conscious, a shift towards sustainable choices like cloth pads and menstrual cups is underway. This shift has led to the advent of small-scale industries that are working on cloth pads and the popularisation of reusable menstrual products in the consumer market. Indian women have been using cloth for menstrual needs for ages. Cloth pads can be an excellent menstrual product choice for girls and women. The following research explores this idea of cloth pads as a viable and sustainable solution for rural and marginalised communities in India.





Figure 6. Abstract representation of menstruation creating waste  
Illustration © Harmanjot Kaur

## I.6 Research question

How might we identify and address systemic barriers for wide acceptance of cloth pads amongst rural women in India in order to develop a more sustainable approach to menstrual health management?

### Secondary research questions:

- How might we educate women to create their own pads?
- What are the pain points in the user journey for cloth pads, and how can they be resolved?
- What are the challenges that organizations face on the ground in promoting the use of sustainable alternatives like cloth pads?

### Rationale

In India, many NGOs, schools, and government initiatives with an intent to promote a healthier lifestyle are helping young girls and women to adopt disposable sanitary products. However, this is coming at the cost of polluting the environment. The increase in affordability and accessibility due to free or subsidized programs for disposable sanitary pads is creating huge problems at the waste management end of the spectrum. A single sanitary pad is equivalent to four plastic bags, and it takes up to 500 to 800 years to disintegrate (Delaney, 2017). MHM guidelines for Indian citizens support the use of clean cloth, but the Indian government is encouraging states to increase the public access of disposable pads (Keatman et al., 2017). In 2019, the Odisha State Government in India approved a Rs.466 crore (\$85.6 million CAD) project to provide free sanitary pads under the 'Khushi' scheme (Bhatia, 2019). Such initiatives do not look at the complete product life cycle and hence are short-sighted. Disposable sanitary pads do address the basic need for menstrual

hygiene for women but, at the same time, create issues around waste management and health risks.

While there are several sustainable alternatives like cloth pads and menstrual cups, which are available in the market, the reach of these products remains sparse in large swathes of India, primarily in rural areas. According to research conducted by Supriya Garikipati and Camille Boudot (2017), in urban slums of Hyderabad, 57% of participants using either rags or old cloth to absorb menstrual blood, indicated that they were willing to change their practices. Additionally, a large percentage of the same set of users (94%) expressed a preference for reusable cloth pads. This user preference suggests a disconnect with public policy initiatives related to menstrual care as the government has solely focused on the promotion of disposable sanitary pads.

According to Hannah Ritchie (2019), "India's population is expected to continue to grow until the mid-century, reaching an estimated 1.68 billion in the 2050s." With the growing population and increasing acceptance of disposable sanitary pads among rural women, the waste generated will keep rising. This wicked problem of increasing menstrual waste, as the government continues to expand the access of disposable sanitary pads, is demanding the authorities to look at alternative options. Hence, the pressing priority for the government should be to have a directed plan for sustainable menstrual hygiene and waste management in India.

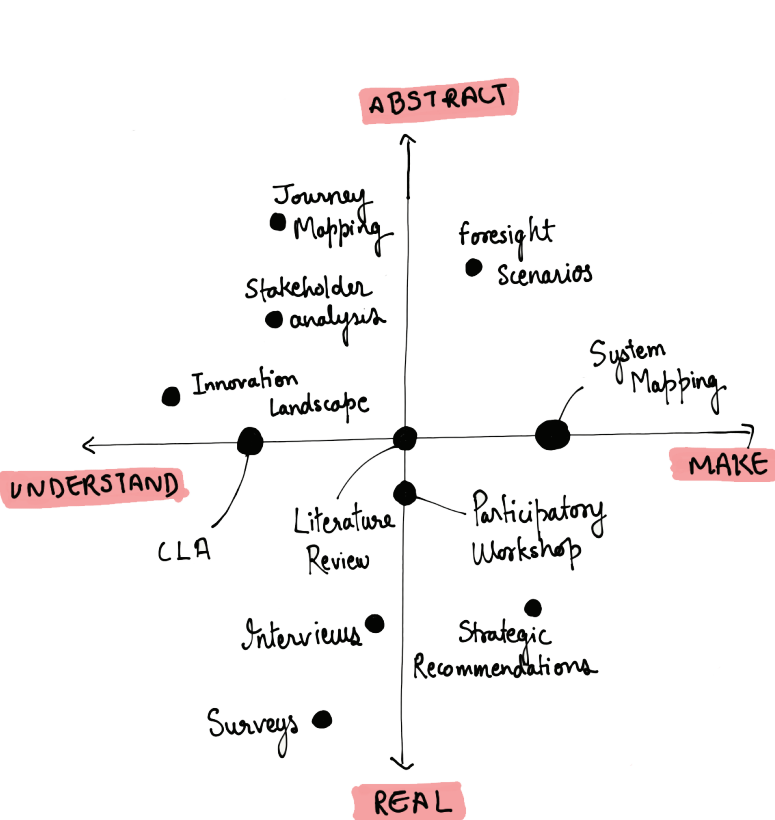


Figure 7: Overview of research methods used in the study, © Harmanjot Kaur

## 2.1 Overview of research methodology

The 2 × 2 matrix in figure 7 illustrates the research methods used in this study. The matrix is based on *101 Design Methods: A Structured Approach for Driving Innovation in Your Organization* by Vijay Kumar (2013). According to Kumar, design innovation is an iterative cycle that oscillates between reality versus abstraction and understanding versus making. The lower left quadrant represents research methods used to understand reality. It includes literature review, surveys, interviews, and Causal Layered Analysis (CLA). The literature review is at the intersection of two axis as it helps to understand the intent of the study as well as anchor other research methods used in the study.

The upper left quadrant represents research methods used for analyzing information about reality and representing the information in mental models to drive innovation. CLA, journey mapping, stakeholder mapping, and innovation landscape are placed in this analysis quadrant. Journey mapping is used to visualise how customers experience a product or service and how they feel throughout the journey. Stakeholder analysis aids in understanding different stakeholders and how each plays a role in satisfying the needs of the user. Innovation landscape shows innovation hotspots and draws attention to fields with new opportunities. CLA illustrates the underlying causes and structures behind the current landscape.

# 02

## DESIGN RESEARCH

The top right quadrant represents methods used for synthesis. In this quadrant, the abstract models developed during analysis are taken as a basis for generating new concepts. Foresight scenarios, systems mapping, data synthesis for interviews, and surveys are placed in this quadrant. Foresight scenarios were used to analyze the current landscape and map the desired future. System mapping illustrates the interconnections between different elements in a system and hence analyze and identify gaps within the system.

Lastly, the lower right quadrant is for the realization of concepts to offerings. Participatory workshop lies on the y-axis. The method enabled the researcher to analyze the current landscape and the insights from the workshop fed into creating recommendations for the study. Strategic recommendations helped to convey the insights of the research into tangible actions.

### Primary research methods

#### a. Interviews

Semi-structured interviews were conducted with experts, leaders, and change-makers actively involved in the industry of creating and promoting cloth pads. The interviewees were from diverse backgrounds like educators, social entrepreneurs, corporate social responsibility managers, and NGO members. They represent different stakeholders of the sustainable menstruation domain. The interviews were conducted remotely, connecting via phone or video call. As part of the primary research, seven people were interviewed, and the following is a brief description of their role and work in the MHM realm. The synthesis of all interview data is discussed in section 3.3.

**Kathy Walkling**, WASH entrepreneur and co-founder of Eco Femme. Eco Femme is a women-led social enterprise founded in 2010. Based in Tamil Nadu, India, its goal is to create environmental and social change through revitalizing menstrual practices that are healthy, environmentally sustainable, culturally responsive, and empowering. Since founding the company, Kathy has been at the centre of bringing a revolution in India by spearheading sustainable menstrual education initiatives like Pad for Pad<sup>[6]</sup> and Pads for Sisters<sup>[7]</sup>. She is actively involved in educating and empowering women as change agents at the grassroots level. Eco Femme addresses taboos around menstruation through grassroots education and design of its cloth pads. The company uses high-quality materials and encourages the use of sustainable menstrual products.

**Bharti Kotwal**, Head of Corporate Social Responsibility (CSR), Yardi Systems Inc. The company has significant interventions in the areas of sanitation, health, education, and vocational training in urban communities. In Pune, its largest outreach initiative is the Yardi Vasti Vikas Prkalp (YVVP). Under this initiative, the company buys Eco Femme's washable, reusable cloth pads and distributes them in vastis (urban slums). The women in vastis are trained in hygienic practices of washing, drying of cloth pads, and also receive menstrual education. Bharati has been with the program since its inception. Her passion for the community goes beyond her career with Yardi. For the past 15 years, she has volunteered to support the social and political empowerment of women and children in India.

**Sneha Dey**, Program Lead for Not Just a Piece of Cloth (NJPC), Goonj; AND **Prachi Jain**, Team member, NJPC, Goonj. Sneha has six years of work experience in the development sector. She is the Program Lead, and Prachi is a team member of Not Just a Piece of Cloth (NJPC), an initiative



of Goonj. Goonj is an NGO headquartered in Delhi, which undertakes disaster relief, humanitarian aid, and community development in India. It promotes circular economy principles by ensuring maximum use of each material and aims to recognize and value the potential of local resources and traditional wisdom of people. Goonj started working on this initiative after the 2004 Tsunami disaster in the southern part of India. It adopted a unique approach of turning surplus cloth into cloth pads known as Goonj My Pad under Not Just a Piece of Cloth (NJPC) initiative. These clean cloth pads are used as a tool to break the shame and stigma attached to menstruation by making women more aware of menstrual hygiene. The team conducts awareness sessions around menstrual health and hygiene, creating a comfortable space for the women to speak up, in some of the most remote villages of India.

**Rajasi Kulkarni-Diwakar**, Freelance Researcher, Mahatma Gandhi Institute of Medical Sciences. She is enthusiastic about driving conversations and spreading awareness around issues concerned with menstruation and related taboos. Founder of the Bleed Red Go Green campaign, social media influencer, blogger, and Menstrual Health Management educator, Rajasi conducts educational sessions at schools, colleges, and communities in rural, urban, and tribal areas of Maharashtra, Chhattisgarh, and Uttarakhand. She delivered a talk on sustainable Menstrual hygiene Management, “How I bleed green every month” as a TEDx speaker. She discusses sustainable alternatives to disposable pads and helps women make informed product choices for their periods.

**Omkar Sathe**, CEO, AllforaSmile Foundation. Allforasmile is a team of professionals passionate about positively impacting the world. It works at the grass-root level, imparting life skills and occupational training to underprivileged

women. It aims to provide inclusive growth and has been working in the field of women empowerment and entrepreneurship since 2010. Pads for Daughters is an Allforasmile initiative, which aims to spread awareness about menstrual health and provide access to good quality reusable cloth pads to girls in schools. The organization has recently set up a unit to manufacture reusable cloth pads in Pune, India. Omkar has over 20 years of professional experience in management and leadership in the IT industry.

**Tanya Mahajan**, Senior Consultant with Development Solutions Inc. India and a founder member of the Menstrual Health Alliance India (MHAI). Development Solutions Inc. provides research, consultancy, and program support for development projects related to public health, livelihood, and rural development. Tanya is a social impact consultant with extensive experience in program design, capacity building, research, and policy advocacy. With more than ten years of experience in health technologies, she has a keen interest in advancing menstrual health in public health programs and promotes informed choice through evidence-based research.

## b. Surveys

Doctors and teachers are two essential stakeholder groups in the landscape of menstrual hygiene for women and girls in India. Surveys were conducted among teachers and doctors to have a better understanding of their product choices, awareness level, and impact within the system. The questionnaire was designed to assess the knowledge, attitude, and practices towards menstrual hygiene management in general and information about reusable cloth pads specifically. Data were recorded from both the surveys and later analyzed to extract the insights. The sample set for the surveys was distributed into two categories.

The first sample set was high school teachers interacting with adolescent girls routinely. For the survey, teachers were recruited from local government schools. Government schools were chosen over private schools as they are a better representation of the rural Indian population. The majority of students in these schools are from lower-income and rural families. Also, government schools are the best sites to analyze the direct impact of government policies and schemes.

The second sample set for the survey was local doctors. Doctors were recruited from Safdarjung Hospital, New Delhi. Safdarjung Hospital is the largest central government hospital in India. Being a government hospital, doctors interact with patients from all strata of society, especially from lower-income groups due to the subsidized treatment provided here. Survey responses were gathered from female doctors across different age groups and varied medical disciplines. The results of the survey are discussed under section 3.2.

## c. Participatory workshop

A participatory workshop was conducted at South Delhi Municipal Corporation Maternity Child & Welfare Centre, Sewa Nagar. It is a supervisory centre for all the Anganwadis in that region under the Ministry of Women and Child Welfare. Anganwadis are government-sponsored mothercare and childcare centres in rural areas. An Anganwadi provides primary healthcare in a village, including contraceptive counseling and supplies, nutritional education, and childcare tips. The Anganwadi staff is composed of all women, typically women from low-income families.

The goal of the participatory workshop was to teach participants how to make, use, and care for cloth pads. They were introduced to different products available for menstrual hygiene, which included period panties,

cloth pads, menstrual cups, tampons, and sanitary pads. The participants were also informed about menstrual health and disease prevention. They were made aware of the biological reason behind menstruation and the natural process of bleeding every month. This knowledge helped them to understand, connect, and respect their bodies, hence increasing focus on self-care.

Participants were all females, aged eighteen or above, from lower-income groups. A pre-workshop survey was conducted to capture the participants' current menstrual practices, awareness levels, choice of menstrual products, and waste disposal techniques. During the workshop, they were given a physical visual guide of step-by-step instructions to explain the process of making cloth pads. The workshop was followed by a post-workshop survey to understand how the process of making cloth pads affected participant's confidence, hygiene practices, sanitary product choices, self-reliance, and awareness level. The location of the workshop was selected to ensure that participants felt comfortable with the environment. All the participants were familiar with the location beforehand and had often visited the place for issues related to reproductive health and childcare. The results of the workshop are discussed under section 3.1.

## Secondary research methods

### a. Innovation landscape

The innovation landscape framework was inspired from 10 Types of Innovation (Kumar, 2013). The framework, modified by the researcher, lays out broader pattern of innovation in menstrual products businesses over time. For this study, the framework was used to understand innovations in materials, products, services, and processes in the domain of sustainable menstrual products in India. The model aided in identifying fields where innovations exist, and brought attention to areas where development opportunities can be found.

### b. Causal Layered Analysis (CLA)

Futurist Sohail Inayatullah developed Causal Layered Analysis (CLA) in 2004. "The method seeks to integrate empiricist, interpretive, critical, and action learning modes of knowing into one approach. The method is useful in developing a more effective, in-depth, inclusive, longer-term policy change" (Inayatullah, 2004). CLA was used to understand the underlying structures, worldviews, and deep-rooted myths and metaphors behind the landscape of menstruation in India.

### c. Foresight scenarios

Foresight scenarios method was utilized to imagine stories about the way the world might transform based on present indicators (Rhydderch, 2017). The tool was used to analyze the current landscape of menstrual hygiene in India and create plausible alternate futures. Four different scenarios were framed based on different parameters. The desired scenario was identified that aided in the framing of recommendations.

### d. Journey mapping

Journey mapping is visual representation of how customers experience a product or service and how they feel throughout the journey. The method was applied to

explain different touchpoints and emotions of a cloth pad user through the medium of a story. The persona for the story was developed based on women from lower income groups in India. The story is a powerful way of representing the daily struggles of a cloth pad user and highlights critical challenges in using cloth pads.

### e. Stakeholder analysis

A stakeholder is an individual, group, or organization such as government, NGOs, businesses, teachers, and family that has a vested interest in the system. Performing stakeholder analysis assisted the researcher in interpreting the relationship between key stakeholders and their impact on the life of a menstruating girl or woman in India. The method is useful to understand how different stakeholders derive value from the system and how that might be affected when novel innovations are introduced into that system.

### f. Systems mapping

System mapping is a tool used to understand interconnections between different elements and subsystems. The methodology "gives us a way to see through chaos and understand complexities" (Gharajedaghi, 2004). The mapping supported the researcher to understand how the system works, highlight gaps, and identify areas for interventions in menstrual landscape of India. The method was used to explore the cascading effect of new interventions from one element to another in the interconnected system.

## Limitations to the research

### a. Small sample size

The sample set for the workshop and surveys was limited. The sample set for the workshop was 17. Whereas the sample set for the teacher survey was 28, and for doctors, it was 14. This small sample set does not represent the diverse population of India. Due to resource and time constraints, it was not possible to conduct the workshop at multiple locations across India, thus results from the workshop and survey data may also be geographically restricted.

### b. Limited time

Menstruation is a monthly natural process, and due to limited time, it was not possible to observe and evaluate the behavior change indicated by participants in the post-workshop surveys. For future studies, it is suggested that a follow-up workshop is conducted after four to six months with the same participants to analyze the real impact of the workshop.

### c. Lack of available data on sustainable initiatives

In the last two years, there have been many small-scale initiatives that are gradually changing the landscape around menstrual hygiene in India. It is crucial to record every shift as it slowly influences a more extensive change within society. During the research, it was noticed that the data on these initiatives was not completely available in the secondary online resources. This missing data highlights a future opportunity to record the impacts of recent sustainable initiatives in a comprehensive manner.







PRODUCT PROCESS	Biodegradable disposable sanitary pad (Agro based pads)	Cloth pad	Menstrual cup
<b>Sourcing</b> 	<ul style="list-style-type: none"> <li>- Banana fiber (Saathi pads)</li> <li>- Pine wood pulp (Sakhi Pads)</li> <li>- Agri waste pads <sup>[8]</sup> (Anandi Pads)</li> <li>- Water hyacinth pad <sup>[9]</sup> (prototype stage)</li> </ul>	<ul style="list-style-type: none"> <li>- Recycle old clothes</li> <li>- Natural cloth materials like cotton, fleece, bamboo etc.</li> </ul>	Lunette, Lady Go, WOW freedom, Sirona, Shecup, Silky cup, Moon cup, Rustic Art are few menstrual brands popular in India.
<b>Manufacturing</b> 	<ul style="list-style-type: none"> <li>- Micro-units (Padman machine, Anandi Pads)</li> </ul>	<ul style="list-style-type: none"> <li>- DIY at home</li> <li>- SHGs</li> </ul> Eco Femme, Goonj, Shomota, Sochgreen, Bhoomi, Uger, Saafkins few companies manufacturing in India.	Manufactured in India or imported internationally.
<b>Distribution</b> 	<ul style="list-style-type: none"> <li>- Local sales (Sakhi Pads)</li> <li>- Local sourcing &amp; selling (Anandi Pads)</li> <li>- Online</li> </ul>	<ul style="list-style-type: none"> <li>- Produced at home, locally or at the production unit</li> <li>- Government</li> <li>- NGOs</li> <li>- Online</li> <li>- Corporate CSR</li> </ul>	<ul style="list-style-type: none"> <li>- Distribution and marketing at the local level</li> <li>- Government</li> <li>- NGOs</li> <li>- Online</li> <li>- Doctors</li> </ul>
<b>Usage</b> 	Natural material reduces incidents of rashes and itching.	Reusable for 2 to 5 years	Reusable upto 8 years
<b>Collection System</b> 		Reusable	Reusable
<b>Waste Management</b> 	<ul style="list-style-type: none"> <li>- Composting</li> <li>- Landfill</li> <li>- Biomass generation</li> <li>- Vermicomposting</li> </ul>	Landfill	Recyclable

Figure 8: Innovation landscape for sustainable menstrual products in India  
© Harmanjot Kaur

## 2.2 Innovation landscape for sustainable menstrual products in India

There has been widespread growth in the domain of sustainable menstrual products in India in the last decade. The innovation landscape framework lays out innovations in sustainable menstrual hygiene products such as biodegradable sanitary pads, cloth pads, and menstrual cups. The table in figure 8 represents innovations in terms of products, services, materials, and processes from the cradle to the grave (creation to disposal) timeline of different menstrual hygiene products. The framework helped the researcher to examine various sustainable initiatives taken by the government, NGOs, social enterprises, and individuals related to menstrual health and waste management system in India.

### a. Biodegradable sanitary pads

Biodegradable pads are sanitary pads made from agricultural material such as banana fibers, bamboo, cotton, and wood pulp. A biodegradable pad is environmentally friendly as it decomposes at a much faster rate than a non-biodegradable sanitary pad. One such example is Saathi pads. Saathi pads are disposable, biodegradable, and compostable sanitary pads made from banana fibers. Farmers earn extra income by selling the banana fiber, which otherwise is burnt or thrown out after every harvest. As stated on the Saathi pads website, "the pads degrade within six months, which is 1200 times faster than a plastic pad."

Another example is Sakhi pads. According to Think Change India (2019), this organization is working with local NGOs and Self-Help Groups (SHGs) to manufacture pads. Sakhi pads are produced from pinewood pulp, along with a mixture of silicon paper, butter paper, non-woven cloth, and cotton. The pad degenerates within eight days, when buried in mud. A pack of eight Sakhi pads sells for Rs. 40 (approximately \$ 0.74 CAD).

User testimonials on the Saathi pad website, show that the use of natural material can reduce incidents of itching and infections.

"I had rashes and itchiness after every period, which continued for a long time, and I started getting UTI infections. I consulted my gynecologist and she suspected vaginal and urinal infection. When I saw blood in my urine, I got tested for kidney infection, which had spread due to the UTI. Doctor suggested that I use sanitary pads which don't contain chemicals. I switched to Saathi pads, and for the last three months I have not suffered from any infection, itching or irritation", Komal V., Saathi pad user (Source: <https://saathipads.com>)

The innovation in the process of manufacturing and distribution is based on setting up of micro-units to produce disposable sanitary pads. Aakar innovations and Arunachalam Muruganatham's low cost pad-making machines are helping to shift the landscape from large macro units to small scale production units. Anandi pads manufactured by Aakar innovation are produced with locally sourced agri-waste. Each Anandi pad is manufactured in a woman-supervised and woman-employed mini-factory. According to Aakar innovation website, the small-scale setup provides an opportunity for local women to become employed, learn entrepreneurial and marketing skills, and even take up management roles within their community.

Arunachalam Muruganatham, popularly known as The Padman, is a social entrepreneur from Tamil Nadu, India. His enterprise, Jayaashree Industries, upholds the belief "by the women, for the women, and to the women" (Kamath, 2017). SHGs reach out to him to set up the machine, which costs nearly Rs.1.5 lakhs (\$2,777 CAD) with raw materials. These women take a loan from a bank to set up the business and later repay the loan through sales of sanitary pads. Depending on the raw materials used, the machine can manufacture both biodegradable and non-biodegradable sanitary pads.



Women buying these machines can make pads and sell them in the local community, unlike Multi-National Corporations (MNCs), which manufacture pads in one place and transport them to different areas. Each machine can make 1,000 pieces of sanitary napkins a day. One sanitary pad is priced at Rs.1 to Rs.1.5 (\$0.01 CAD to \$0.02 CAD) (Venugopal & Abhi, 2013). Muruganatham estimates that 24,000 women have been employed through this initiative, and 13 million women use the pads manufactured through the machine. The machines have been installed in 17 nations and Muruganatham is currently planning to expand the production of these machines to 106 nations (Kumar, 2016). The innovative model of local production of sanitary pads has increased awareness and product knowledge among many communities in rural India. Along with women working in these micro units, men in society are also becoming aware. The low cost and local manufacturing model provide the required accessibility and affordability to rural areas. Hence, more women are adopting these disposable pads.

Biodegradable sanitary pads decompose under specific conditions that differ from product to product based on manufacturing materials and processes. Muruganatham's pad machine is used for making both biodegradable as well as non-biodegradable disposable sanitary pads. The choice of raw materials depends on the manufacturer and hence pads made using the machine can vary in decomposition time. Anandi pads are capable of disintegrating into natural elements in a compost environment within 90 to 180 days, depending on varying environmental factors such as heat and humidity. Anandi pads can decompose in vermicomposting (the use of earthworms to convert organic waste into fertilizer) at an industry scale (Green the Red, 2019). For effective decomposition, biodegradable pads should not be mixed with plastics. The right way to dispose of biodegradable

sanitary pads is by wrapping it in paper and throwing it with wet waste.

In India, solid waste is segregated into wet waste and dry waste. It is hard to know how many people presently using biodegradable pads are disposing of them correctly. Even if they are, due to the lack of education among waste segregation workers, the biodegradable pads might be treated as regular plastic pads and end up in incinerators, burnt out in the open, or dumped in landfills along with other plastic waste. New ways of decomposition such as vermicomposting can help in managing biodegradable waste efficiently but getting segregated waste to the dumping and composting sites is the real challenge. Lack of proper waste segregation system acts as a broken link between waste disposal and waste management. Hence, there is a necessity for awareness amongst biodegradable sanitary pad users and waste segregation workers on proper ways for disposal to complete the life cycle of biodegradable disposable sanitary pads.

### **b. Cloth pads**

In India, women have been using cloth for centuries. It is nothing new to them, but instances of unhygienic handling of the cloth have resulted in infections, causing many people to believe that cloth is not safe, and sanitary pads are a much safer option. Initiatives taken by cloth pad manufacturing companies, NGOs, and social enterprises such as Eco Femme, Goonj, and Jatan Santhan are changing the negative connotations associated with cloth pads. These organizations are making cloth pads accessible for all and simultaneously educating women on safe hygiene practices for handling cloth pads.

Goonj, an NGO headquartered in Delhi, conducts awareness sessions on menstrual hygiene and distributes My Pad kits to rural women. The kit comes with ten reusable pads, one undergarment, and a menstrual

hygiene awareness brochure. All the cloth pads are made using donated clothes. The Uger project was started in 2011 under a not-for-profit organization, Jatan Santhan. The organization works with marginalized rural communities in the state of Rajasthan, India. It conducts workshops with both men and women across different communities and demographics. The workshops aim to sensitize people to all aspects of reproductive health and to educate them on how to make cloth pads.

Eco Femme is a woman-led social enterprise based in Auroville, India. It manufactures washable cloth pads and provides menstrual health education. The organization promotes the production of cloth pads by assisting NGOs and SHGs in setting up micro production units. Eco Femme also has a DIY kit available on its website for someone who wants to try making cloth pads at home.

Due to various taboos and myths, washing and drying cloth pads are the most prominent challenges hindering the cloth pad's adoption. Eco Femme has produced foldable cloth pads that open up to form a square piece of cloth. These pads are popular in rural communities as they can be dried quickly without indicating that they are used to absorb menstrual blood. If proper care is taken, a single cloth pad can last up to three years. Many people are working to make cloth pads a mainstream menstrual product in India. However, limited data on its acceptance and success as a product is hindering the government from adopting and promoting it.

### **c. Menstrual cups**

Menstrual cups are still a novel product for Indian consumers. The market is developing in this domain, and many new brands are emerging. Menstrual cups are gaining resonance among urban educated women who are looking to reduce their environmental footprint and adopt

sustainable ways of living. People reduce their environmental footprint and adopt sustainable ways of living. People are getting to know about menstrual cups through marketing campaigns, blogs, social media influencers, and word of mouth. Menstrual cups are not being promoted by the government nor local NGOs as the usage of the product involves inserting the cup inside the vagina. This usage technique is a barrier to many in India as it is perceived as a threat to a girl's virginity.

## 2.3 Causal Layered Analysis

Causal layered analysis (CLA) was used to examine the underlying structures and worldviews for the current landscape of menstruation in India. The diverse underpinning perspectives about menstruation helped the researcher to understand the foundation for the present practices and beliefs. The deep-rooted myths and metaphors identified in CLA assisted the researcher in developing recommendations that are an integral part of the research.

The Causal Layered Analysis method consists of four levels. These four levels are explained using an iceberg model. The first level is called "litany". It consists of unquestioned day-to-day reality, trends, and issues such as headlines and data. The topmost layer makes the tip of the iceberg. The second level is the "systems and structures". It includes social, economic, cultural, and technical analysis. The third layer is the "world view" or multiple perspectives. It includes culture, values, languages, and memes. The fourth and deepest level is comprised of "myths and metaphors" linked to world views. It represents "the unconscious emotive dimensions of the issue" (Inayatullah, 2004).

Going up and down between different layers of CLA helped to identify strategies and solutions by constructing alternate narratives originating at the level of myths and metaphors. The myths and metaphors derived through CLA such as "we fear what we do not understand", "pain is part of being a woman", "a little knowledge is a dangerous thing", and "cloth is dirty/unhygienic" were challenged to create new narratives like "menstruation is normal", "knowledge is power", and "cloth can be hygienic". These metaphors helped to define strategic recommendations in the latter part of the study.

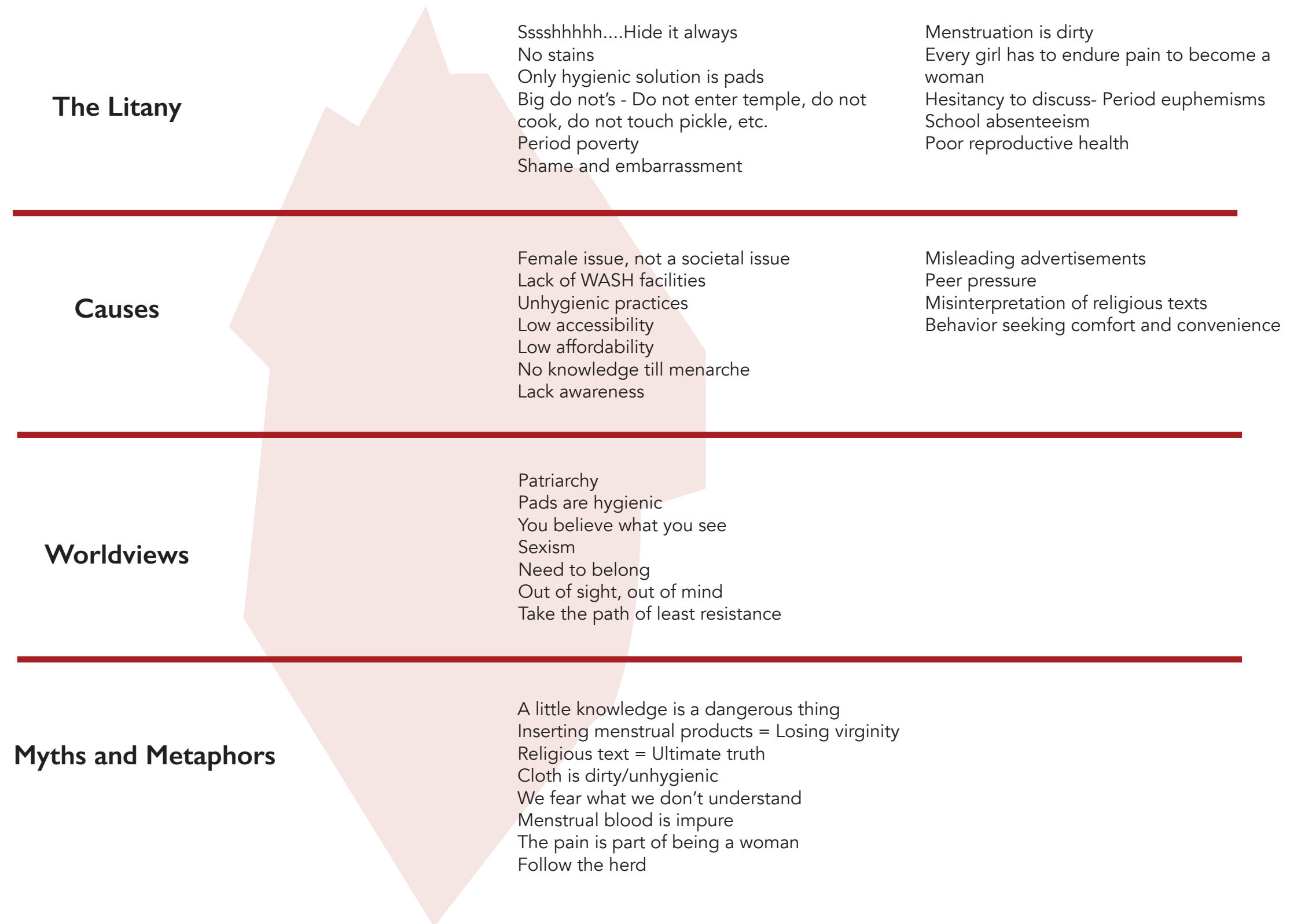


Figure 9: CLA method used for understanding the menstruation landscape of India  
Method © Inayatullah, 2004

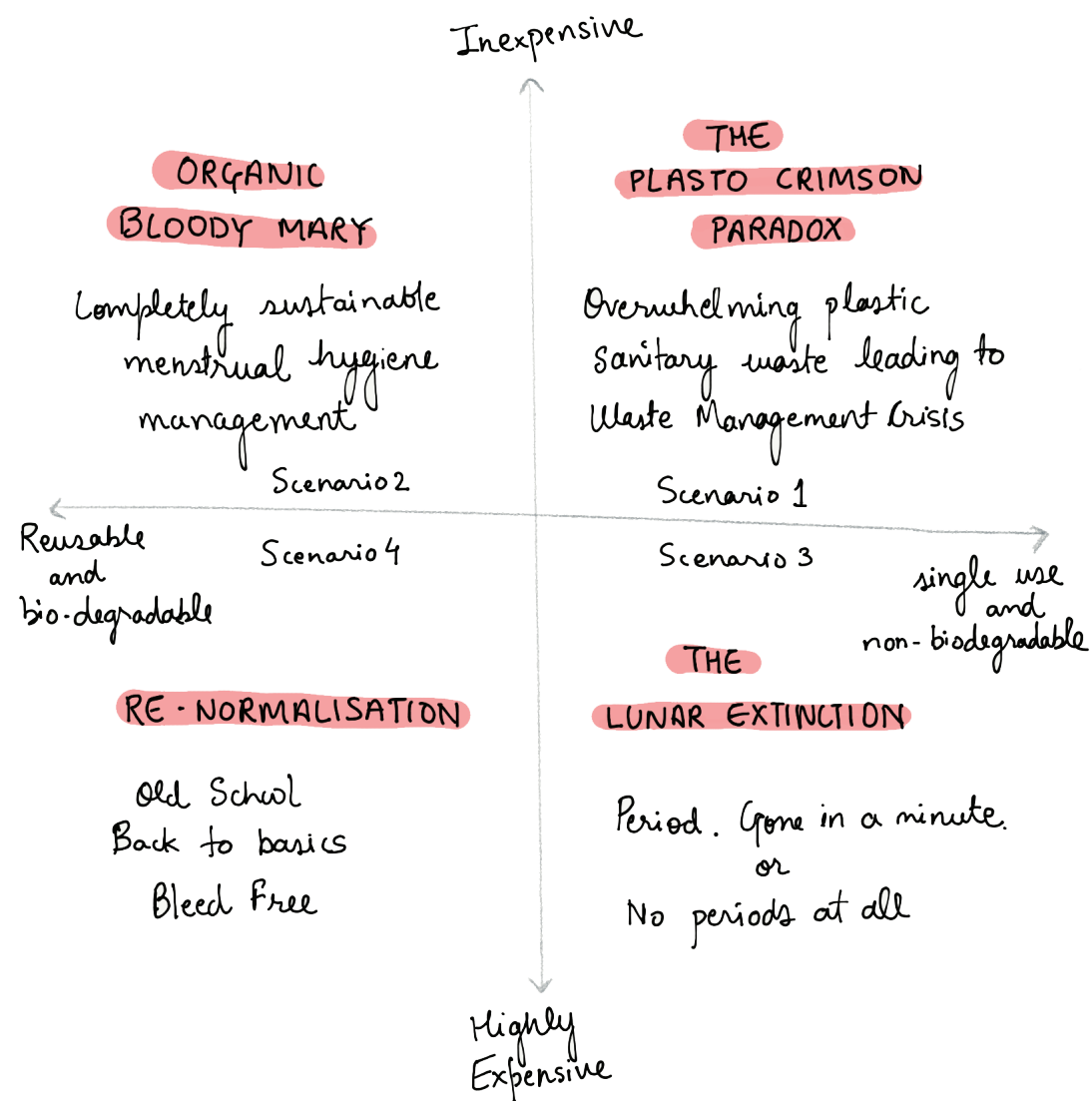


Figure 10: Future Scenarios for menstruation in India,  
© Harmanjot Kaur

## 2.4 Foresight scenario

Scenario building is a technique used for storytelling, analysis, and strategizing. A scenario can be regarded as a story about the way the world might turn out tomorrow based on present indicators. Nevertheless, a scenario cannot be viewed as a definite future prediction because there are various possibilities about how the situation can be in the future (Moriarty et al., 2005).

After reading through secondary resources, it was discovered that there are many factors in the domain of menstrual health management in India, such as education, sanitation, tax, medical facilities, and waste management system. In order to break down the complexity and narrow the focus of research, the technique of foresight scenario building was used. Based on the current landscape, a 2\*2 matrix was utilized to generate foresight scenarios. This exercise helped to anchor the research in reusable materials and waste management system in India. Further, it helped to identify a desired scenario for the future and make recommendations on how to progress towards that desired scenario.

In a 2\*2 scenario generation method, the two axes represent the uncertainties of the overall system under scrutiny (Rhydderch, 2017). The scenarios are created by the combination of axes corresponding to each quadrant. A complete set of four scenarios are generated in the process. The matrix in figure 7 outlines four plausible scenarios within the context of the future of menstruation in India. The x-axis has two extremes; one end is reusable biodegradable, whereas the other end is non-biodegradable single use. Similarly, for the y-axis, one extreme is highly expensive, whereas the other end is inexpensive. Using the 2\*2 scenario generation method, the four scenarios were developed. The scenarios are pictured in 2050. The global trends influencing the scenarios are: rapid

urbanization, climate change, globalization, throw away culture, the rising middle class, and growing inequalities. Many political, social, and economic factors would have changed by 2050. Following is the description of the background in which the scenarios are placed, followed by a detailed explanation of each of the four scenarios generated.

### Background for scenarios:

India will have the world's highest population. Resources around the world will decrease due to the increased consumption and greed of humankind. The shortage of resources will lead to an upsurge in the prices of essential goods. The gap between the rich and poor has widened, and marginalized people are struggling for necessities.

The solid waste management system is slowly improving, but it is unable to meet the rate at which the waste is being generated. The processing of non-biodegradable waste has become more manageable but is still polluting and is highly expensive. Secluded dumping sites are impossible to find, and underprivileged people are living in close proximity to landfills. Increasing education and awareness over the past 30 years has helped to shed the stigma around menstruation, but it remains a taboo in some of the tribal communities in India. The growth of infrastructure is slow, making proper waste disposal from houses to waste sites a challenge.

The following is a brief description of each scenario generated using 2\*2 matrix as seen in Figure 10.



## Scenario 1:

### The Plasto-Crimson Paradox

In this scenario, disposable sanitary pads have become highly affordable and accessible to all segments of society, and their usage has increased exponentially. Approximately, 550 million women are disposing of non-biodegradable pads generating tons of waste every month. The government does not have enough land to dispose of this waste in landfills. The drainage system is frequently blocked due to flushed pads. Special incinerators are installed in many cities, but their capacity is not enough to tackle the ever-increasing waste generated. The stored menstrual waste near incineration facilities becomes petri-dishes for bacteria growth. The tropical climate of India provides a perfect environment for spreading infections near these sites.

The shedding of taboos has made the situation worse as people feel comfortable throwing away menstrual waste in open, unregulated spaces. Unwrapped menstrual pads can be easily noticed thrown along with other garbage in public bins. Disposable sanitary pads seem to be an easy solution to handle menstruation. However, on the contrary, it is challenging for the government and community to handle the staggering number of used, non-biodegradable plastic pads.



Image 29. Waste landfill site  
Image Source: Unsplash ©Pop&Zebra

## Scenario 2:

### Organic Bloody Mary

It is the most desired scenario in which reusable biodegradable products have become highly accessible and affordable to the public. Due to a ban on single-use plastics in India, people have become aware and conscious of their choices and lifestyle. Despite the ban, disposable sanitary products are still available in the market for people with medical conditions, but their use is limited.

The improvement in Menstrual Hygiene Management (MHM) over time and shedding of stigmas have made cloth pads and menstrual cups widely acceptable in the Indian market. The shift in media advertisements towards reusable and biodegradable alternatives has helped to create awareness and education about sustainable menstrual hygiene. The waste management system is following the motto "the best way to manage waste is not to produce it in the first place." Waste management authorities are educating people on waste reduction and techniques on how not to overload the waste management system.



Image 30. Abstract adoption of sustainable menstrual product choices by female body  
Image Source: Unsplash © Ava Sol



### Scenario 3:

#### The Lunar Extinction

In this scenario, since the menstrual products are highly expensive, people have limited access to them. Alternatives have been tested, but the option of uterus removal has become a common tradition in some of the low-income communities in India. The procedure of uterus removal has been advertised as a safe option by doctors to end periods forever. Women who chose to remove their uterus in order to have additional days to work and do not want to deal with menstruation, are advocating for the process. Women, after a certain age, who have limited means, are opting for this procedure and giving up menstrual cycles permanently along with the possibility of giving birth.

For the section of society which is affluent, there are limited and expensive choices available. The pharmaceutical companies have designed and tested pills that do not allow the uterus lining develop. After taking this pill, there is no period at the end of the month. Another popular menstrual product in this scenario is an extraction bulb, which received medical clearance for use at home in 2037. Women put a single-use silicone bulb at the opening of the uterus and pump water inside the uterus to flush away the uterus lining. The vacuum suction clears all the blood within the uterus in one go, which otherwise takes three to five days to clear. This procedure can be easily performed at home and takes less than a minute. The silicon bulb has become the most popular menstrual hygiene product by 2050.



Image 31. Uterus represented in form of a papaya fruit  
Image Source: Unsplash

### Scenario 4:

#### Re-Normalisation

In this scenario, the menstrual products are reusable and biodegradable, but they have become highly expensive. High costs have made menstrual products only accessible to the wealthy in society. While the taboos around menstruation fade away, there is an increased trend of accepting menstruation as a bodily phenomenon, and there is no need to stop or hide it away. This has encouraged people to shift to old practices of bleeding free. In this time, the free bleeding fashion industry is flourishing. The new garments let users bleed freely in their clothes without worrying about the stains. The bleed-free attires are readily available in the market and advertised as affordable alternatives to traditional menstrual products. Even though free bleeding is not acceptable publicly, an increasing number of marketing and awareness campaigns are trying to normalize the process.

To conclude, the scenarios provide a lens to look at future possibilities and how these possibilities can shape our society and policies today. They provide insight on different possible futures. The most desired scenario, Organic Bloody Mary, aims at sustainability and accessibility of menstrual products for the majority. In contrast, the Plasto-Crimson Paradox scenario reflects on the dominance of cheap disposable pads in the market, which might seem lucrative in the short term, but in the long term, disposable sanitary pads are impacting the health of users and damaging the environment. The third scenario, The Lunar Extinction, is inspired by the present scenario in which rural women are willingly getting rid of their uterus in order to earn more working days in the field. The Re-Normalization scenario explores the concept of free bleeding and menstruation as a routine bodily process. This extrapolation of the current landscape into future possibilities assisted the researcher to challenge the current worldviews to create a long-lasting change. The backtracking of future scenarios to present reality enabled the framing of recommendations to meet the vision of the desired scenario.



Image 32. Indian girl enjoying the breeze  
Image Source: Unsplash © Aditya Sexena



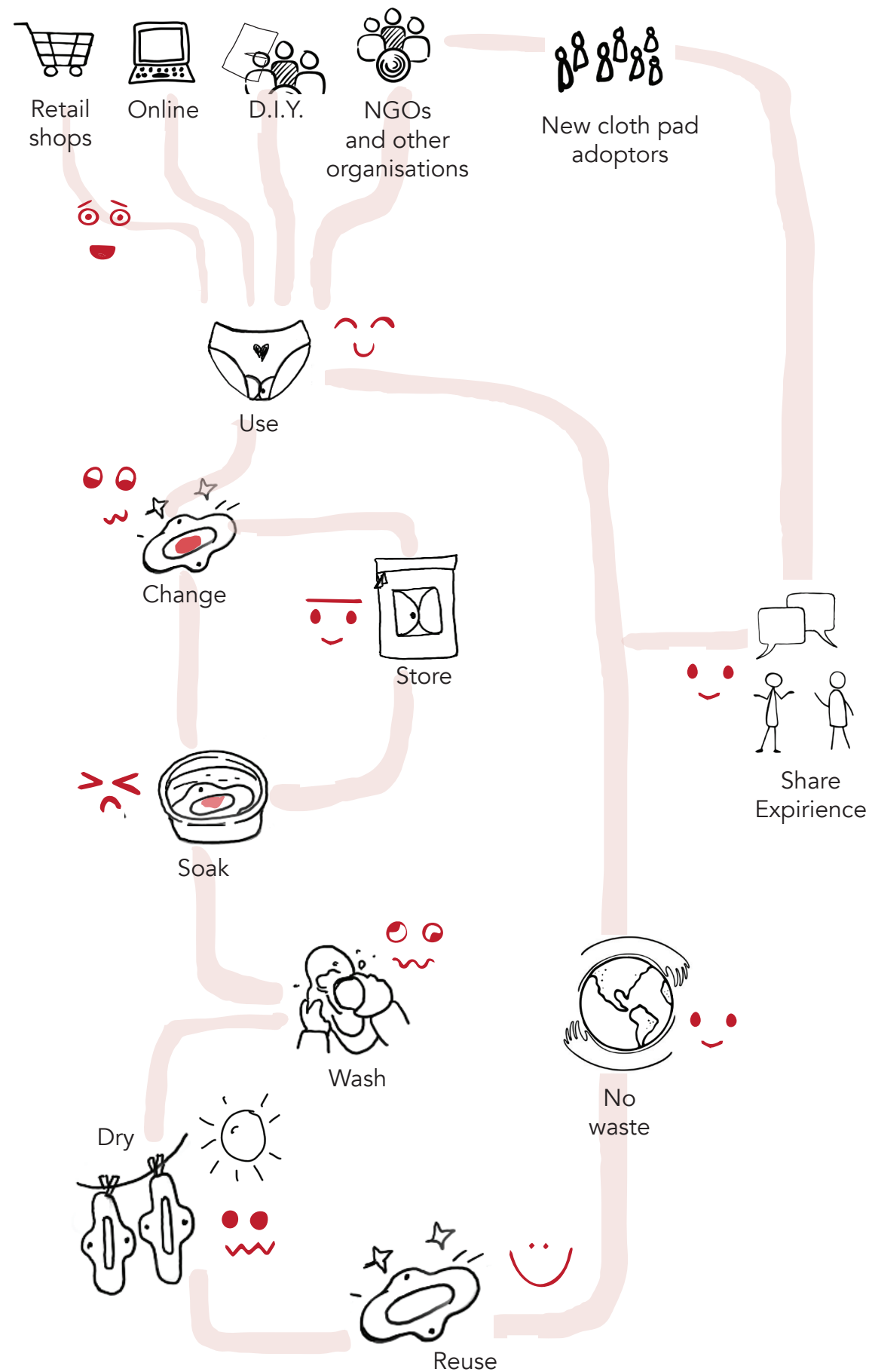


Figure 11: Journey mapping of a cloth pad user  
Illustration © Harmanjot Kaur

## 2.5 Journey mapping

Figure 11 represents the journey map of a cloth pad user, Mrs. Shanti, and her emotions along the way. Mrs. Shanti's imaginary persona was developed to understand the context of the story. The persona was inspired from the workshop experience and interviews. The following story represents the journey of Mrs. Shanti from the introduction to the adoption of cloth pads into her lifestyle. It also talks about the challenges faced by her in the use of cloth pads.

Mrs. Shanti lives in a small house on the outskirts of Pune, Maharashtra, India. She has four children and works as a household maid in the city. Her husband works as a laborer at a nearby construction site. She is 34 years old, and for most of her life, she has used cotton or old cloth to absorb menstrual blood.

Rural women like Shanti, have access to cloth pads through NGOs or other organizations such as Eco Femme, Baala, and Goonj. Shanti received a set of three cloth pads from the Mahawari Ki Pathshala menstruation education workshop conducted in her locality by one of the leading social enterprises in India. In the workshop, she learned how to use cloth pads hygienically and how to make one for herself at home.

Shanti has received free disposable sanitary pads in the past from her local Anganwadi centre, but she was not very fond of them. She found it challenging to find a place to dispose of the pads. Moreover, she had rashes every time she used a sanitary pad, which affected her day-to-day life. Shanti was thrilled to receive a cloth pad and wanted to try it.

She waited eagerly for her next menstrual cycle. Once she got her period, she tried the cloth pads. She was happy with the quality and fitting of the cloth pad. During her periods, Shanti was always aware of her surroundings and worried about staining her clothes. Cloth pads were comfortable to use while a big drawback was that sometimes the pad shifted from its place staining her clothes.

When the pad is soiled and needs to be changed, Shanti must find a clean and private place. Since she uses community washrooms to clean and bathe, she has to wait for freshwater and a timeslot when fewer people are around so that she can wash her pad discreetly. After washing her pad, she leaves it to dry at one corner of the terrace, hoping the sun will reach there the next morning.

While she is at work, Shanti's life is easier. She is free to use the servant toilet at her owner's house. She feels comfortable to change her pad in privacy. After changing, she puts the soiled one in a small pouch provided along with the pad to store it properly. Once the used pad is sealed in a pouch, she feels relieved. After coming back to home, she cleans the pad and leaves it for drying.

Though it is challenging to dry the pads in sunlight, Shanti is happy to use cloth pads. She does not have to worry about where to throw the stained cotton and used rags. Earlier, she threw her menstrual waste in an open area or dug a small hole in the field and hid it there. After two months of using cloth pads, the rate of irritation and infections has gone down. Now, Shanti has been using cloth pads for three years, and she is making new ones for herself.

Shanti has discussed her positive experience of cloth pads with many others in the community, and they also want to try for themselves. When free, she is voluntarily teaching others how to make cloth pads. Shanti likes how her experience with the cloth pads will help her daughters when they grow up.

### Insights from journey mapping of Shanti

1. Since the cloth pads are not sold by retailers, there are limited channels through which cloth pads can reach the rural population.
2. Rural women like Shanti are not aware of different menstrual products and rely on NGOs or government ASHA workers to get some information about menstruation and related products.
3. Shanti's decision to not use disposable sanitary pads since its usage caused her rashes reflects that the comfort of menstrual products is a priority for many.
4. Shanti's eagerness to try cloth pads portrays that she is ready to switch to a new menstrual product if it satisfies her needs and body.
5. Shanti's emotional journey in figure 8 represents that she is happy throughout the journey except when she has to change, wash, or dry her cloth pad.
6. Another stress point for Shanti is the stains due to shifting of cloth pad, which is a concern to her throughout the day.
7. The journey highlights the contrast between having a private space to change and using a community washroom during menstruation. Private space provides peace of mind and comfort, whereas community spaces lack WASH facilities, which makes washing of cloth pads difficult.
8. Since cloth pads are reusable, it takes off the burden to discretely dispose of the pad after every usage.
9. Shanti teaching other women in the community to make cloth pads represents that local women can act as community mobilizers if their personal experience with cloth pads is positive.

### Pain points identified in journey mapping:

1. Washing of cloth pad
2. Drying of cloth pad in sunlight
3. Lack of a private place for changing and washing pads
4. Fear of leaks
5. Shifting of cloth pads

## 2.6 Stakeholder analysis

A stakeholder is either an individual, group, or organization who has a vested interest in a system. Stakeholders have the power to influence, change, or shift the system. The method of stakeholder analysis assisted the researcher to study the level of impact of critical stakeholders within a system. The method enables to understand how each stakeholder plays a role in satisfying the needs of the user. The user, in this case, is a menstruating girl or woman.

Figure 12 shows the different stakeholders within the system of menstruation in India. As seen in the figure, the stakeholders are divided into three parts. The user is at the centre with primary stakeholders in the first circle surrounding the user. These are individuals and groups like family, friends, retailers, teachers, SHGs, doctors, ASHA workers, and waste pickers. The user has direct contact with these stakeholders regularly.

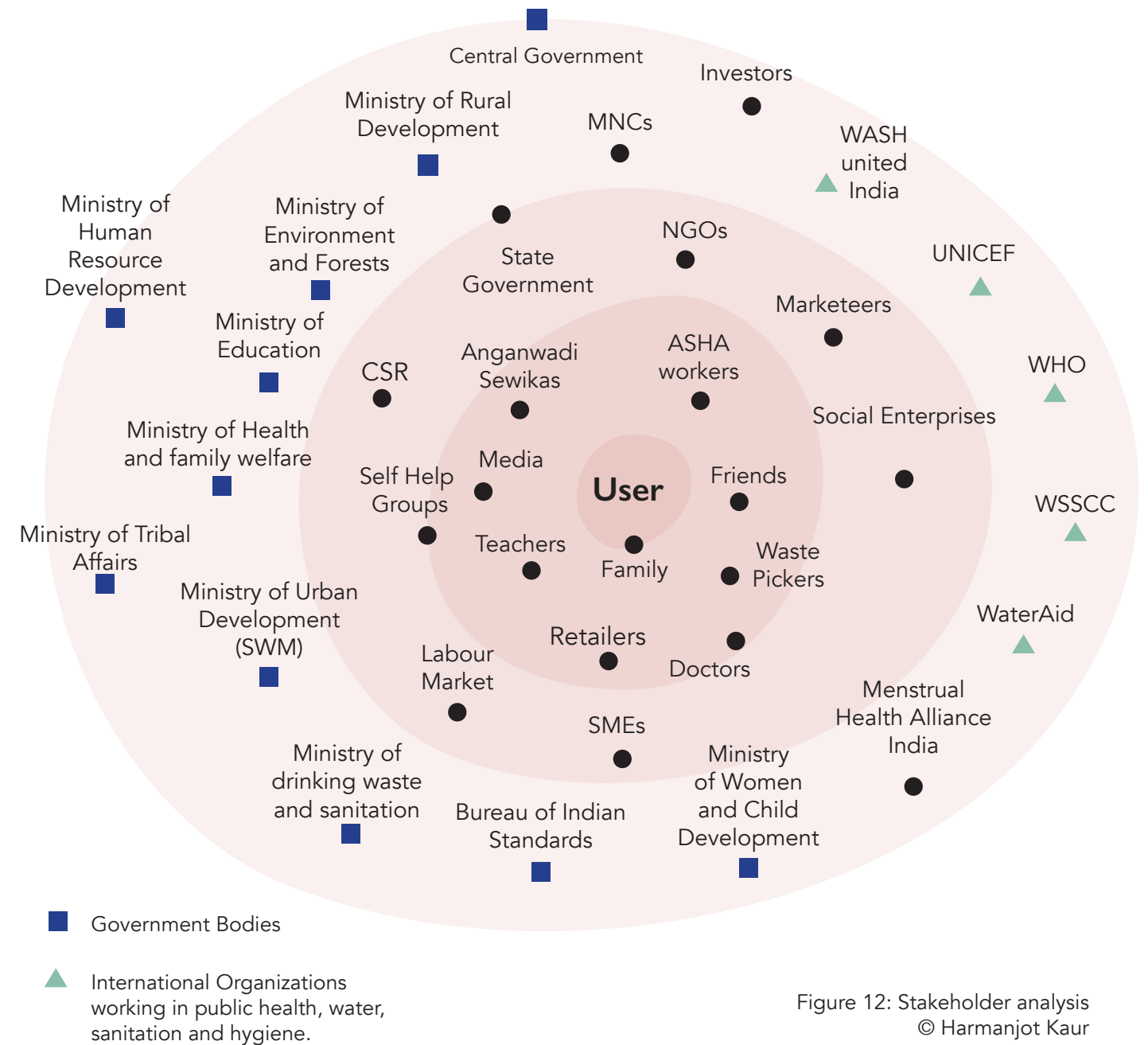


Figure 12: Stakeholder analysis © Harmanjot Kaur

The secondary circle includes stakeholders like NGOs, CSR, marketeers, social enterprises, SMEs, and the labor market. These are the ones that have an indirect impact on the lives of the user but still play a crucial role in their Menstrual Health Management. The third circle includes stakeholders at the policy, research, and social welfare level. These play a very crucial role in the journey of the menstrual hygiene of the user as they define policies, provide funding, and offer support to marginalized groups. These are multilevel organizations and do not have any direct contact with the user.

**Analysis:** In the tertiary circle, there are different ministries under the central government that work towards various needs for MHM. In the researcher's observation and as reported by Tanya, founding member of Menstrual Health Alliance India, discussed in her interview that these organizations work in silos and lack holistic vision, which creates barriers to effective MHM. The stakeholders in the second circle are making fragmented efforts in order to help the user. Since they have limited resources, their outreach is also limited. Interviews and the literature review indicated that stakeholders like NGOs, SHGs, CSR departments, and social enterprises reach out to the user through leaders and community mobilizers, which encourage informed choice and better hygiene. Stakeholders in the primary circle are the user's first touchpoint, and they have the maximum influence over the user. For the successful implementation of policies, it is crucial to educate and mobilize the primary stakeholders.

Figure 13 represents the power and interest dynamics between different stakeholders inspired from Systemic Design Toolkit. Stakeholders like the government and businesses have the highest power within the system. These stakeholders have a direct impact on each other and on the MHM system in India. The lack of interest by the government in menstrual health and hygiene system in India is indicated in the literature

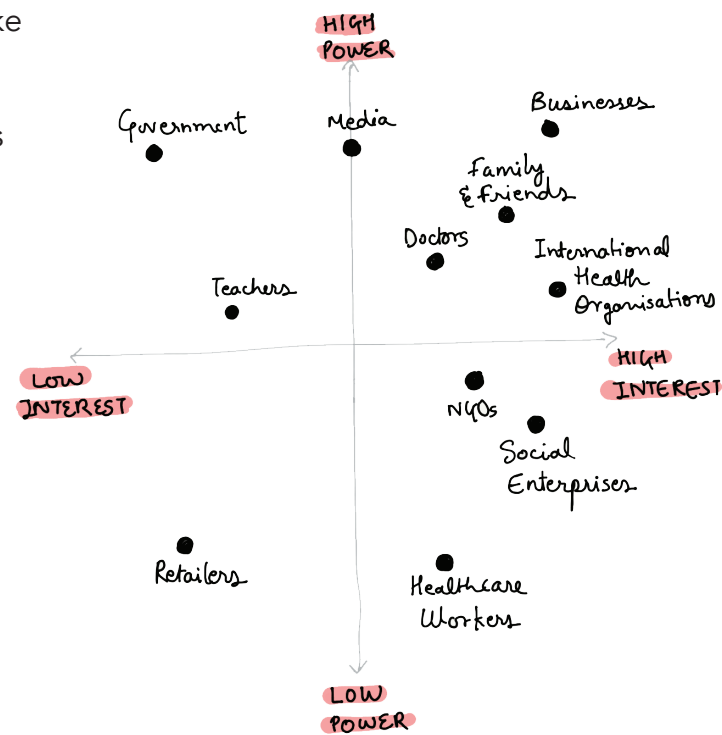


Figure 13: Stakeholder power and interest matrix Method © Systemic Design Toolkit

review through the absence of proper curriculum around menstruation in schools, shortage of menstrual facilities in public washrooms, and lack of awareness initiatives to spread information among the society.

In the researcher's view, government policies such as tax reductions on sanitary products, subsidizing pads for school-going girls and marginalized women, installation of incinerators, education, and awareness on menstrual health have a direct impact on the users. However, due to a lack of interest in the system, the impact of the government is limited. Whereas on the other hand, businesses such as MNCs and private sanitary pad manufacturers have a high interest as they see a potential consumer market of millions of women in India that can be converted from a cloth user to a sanitary pad user (Chattopadhyay, 2016). Businesses have substantial financial backing and access to major platforms such as media and retail spaces which makes them powerful influencers of consumer behaviour. Rajasi, researcher and sustainable menstrual health

influencer, mentioned in the interview that, in order to get the maximum market share, big businesses are reaching out to different segments of society by lowering their product prices. This accessibility at a low cost is causing enormous waste management challenges in rural and urban India.

Media has a huge role to play in the MHM system in India. It can be used to spread awareness, product knowledge, and hygienic practices around menstruation. According to the researcher's experience of living in India for more than 20 years, the media has high power, but the media itself does not have a high interest in covering the menstrual landscape in India. Media is used as a marketing tool by MNCs for selling disposable feminine hygiene products. As indicated in an interview with Sneha and Prachi, who are working on Not Just a Piece of Cloth (NJPC) initiative by Goonj, stated that most of the media advertisements are directed towards presenting disposable sanitary pads as a better option than cloth pads and hence increasing the user base for sanitary pads by converting cloth pad users to single use sanitary pad users.

International organizations such as WASH United India, WaterAid, UNICEF, WSSCC, and WHO working in public health, water, sanitation, and hygiene have high interest but medium power. Such organisations can collect data, conduct workshops, and create awareness but cannot define any policies for the user (Spot on, 2015). International organizations have more power than local NGOs and small-scale social enterprises because of large scale funding and its capacity to represent the issue of menstruation at a global level. NGOs and social enterprises working in the menstrual health sector in India have high interest but limited power due to lack of resources. According to the researcher's insights from the interviews, most of the NGOs and social enterprises have minimal government

support, and thus these organizations must create a self-sustaining financial model in order to promote sustainable menstrual alternatives.

Other stakeholders, like family and friends, have high power and high interest. They can play a vital role in shedding myths and taboos surrounding the user. According to survey data analysis, doctors have high power and high interest. They can help create awareness towards different alternatives and dispel myths around menstruation. Teachers have high power and moderate interest because talking to students about menstruation is a subject of personal choice and comfort for teachers. Aditi Gupta, the founder of Menstrupedia, explains that her male Biology teacher skipped the entire lesson on menstruation to avoid the discussion with the students, which contributed to a lack of knowledge on the subject for a very long period in her life (Dubey, 2014). Teachers hold high power to influence young minds. Talking to students about menstruation helps in busting myths around menstruation, educates men in society, and, most importantly, gives a safe space for girls to talk about their menstruation-related issues.

Retailers selling menstrual hygiene products have low power and low interest in the system. In the researcher's experience, retailers are concerned about the financial sustainability of their business and hence, choose to keep stock of products with high market demand such as disposable sanitary products over menstrual cups. Since the topic of menstruation is stigmatized in Indian society, as experienced by the researcher, retailers do not have open discussions with customers on available product choices and hand over the menstrual supplies wrapped in a piece of newspaper or a black plastic bag, reinforcing the stigma onto the customer.

## 2.7 Systems analysis



Figure 14: System of menstrual health and hygiene in India  
Illustration © Harmanjot Kaur



System mapping is a tool used to understand different elements, their interactions and relationships with one another (Gharajedaghi, 2004). The high-level interconnections of different elements, and subsystems helped the researcher to understand how the system works, challenge assumptions, and identify areas of intervention. Figure 14 shows the system map of menstrual health and hygiene in the context of rural India. One can see multiple loops closely linked together. The system map shows the interconnected landscape of menstrual health in India and discusses how it can be altered to create a cascading change.

In the figure 12, taboos and patriarchy are feeding into multiple subsystems and inflicting negative impacts on those systems. School absenteeism, lack of education, and gender inequality are contributing to one another. Thus, making interventions for improving one subsystem will have a cascading improvement impact on other loops, multiplying the force of efforts across the system. Unhygienic practices originate due to lack of proper education at school, and the absence of WASH infrastructure facilities. When combined with a lack of awareness about menstrual products and their usage, it leads to a higher risk of infections and poor health.

MNCs are pushing demand by promoting single-use sanitary pads as the most hygienic option. This creates a lack of choices available to users and, at the same time, feeds into low affordability due to the relatively high cost of sanitary pads for rural users. This lack of affordability leads to unhygienic practices that are not safe for users. Even if they can access sanitary pads, the advertisements show them as super absorbent and hence mislead them to wear these products for a longer duration than is intended and safe to do.

As discussed during the interview with Rajasi, researcher and sustainable menstrual

health influencer, there were cases in which rural women did not know how to use sanitary pads properly after getting them for free from the government. As told by Rajasi, "I have seen rural women washing and using disposable sanitary pads again. I have also seen women washing sanitary pads and throwing them away as they cannot throw pads with blood on them due to superstitions." This disturbing anecdote reflected a clear need for dialogue while giving out sanitary pads to rural communities. Hence, when thinking of interventions, there is a need to see the systemic view and address the problem holistically rather than looking at one element or loop (in this case, affordability) and just working within it. Thus, the issue of affordability and awareness must be tackled together and not independently.

In the procurement loop, the central and state government is subsidizing pads or providing free pads to address the issue of affordability amongst rural women. These pads are bought in bulk at low cost from different sources. Even though there are standards set for disposable sanitary pads, many local manufacturers do not adhere to the standards properly in order to decrease the cost of the pads. As it was seen in primary research and interviews, the quality of pads received through these subsidized programs varies greatly and is mostly sub-standard.

MNCs have a stronghold on the menstrual product market. With ample financial resources and influence over media, they are running marketing campaigns to promote sanitary pads and are establishing rural supply chains. The ease of accessibility results in increased demand. This increased demand accompanied by the use and throw-away convenience of disposable pads are increasing the amount of menstrual waste generated. The enormous waste is putting pressure on the government's waste management system and damaging the environment.

The advertisements represent cloth as an inferior and unhygienic material in terms of being used as a menstrual absorbent. The disposable pads are represented as a superior choice on the premise that they can absorb more blood. These advertisements take away credibility from cloth. By demeaning cloth as a material, cloth pads get perceived as an unhygienic choice. During the interview, Kathy, co-founder of Eco Femme, stated that "Cloth is not problematic; it is the practices around its usage which are problematic." As a result of these advertisements, cloth pad companies have to first convince users about the safety of the product and then educate them on its proper usage. Without massive marketing budgets and defined product standards, it becomes difficult to counter the narrative being propagated by sanitary pad companies and gain user's trust. Thus, a low-cost sustainable alternative gets pushed out of the market due to misinformation from the advertisements.

Following figure 15 represents the areas of interventions identified using systems mapping,







Image 33. Poster of different menstrual products displayed during the workshop



Image 34. Workshop session

# 03

## RESEARCH FINDINGS



Image 35. Question and answer session after the workshop



Image 36. Researcher explaining how to make cloth pads using the instruction brochure



Image 37. Workshop participant cutting cloth using cloth pad template provided in the workshop

### 3.1 Do-It-Yourself workshop

Women from lower-income groups were recruited for the workshop with the help of Anganwadi workers. Females registered in the Anganwadi network, who were above 18 years of age and had prior stitching and sewing skills, were invited. A poster was used to inform women about the workshop. The session was conducted outside the M&CW centre, Sewa Nagar, South Delhi. The location of the workshop was selected to provide a safe and comfortable environment for participants to overcome hesitancy and to discuss the topic of menstruation openly. The workshop was conducted in Hindi, which is the native language of the participants.

Seventeen participants attended the workshop. Seven participants had infants with them, and since it was not safe to use sharp objects like needles, scissors, and staplers near small children, they were only allowed to attend the session but not participate in making cloth pads. So, the remaining ten women participated in making cloth pads.

At the beginning of the workshop, the biological process of menstruation was explained to the participants. Following this, they were introduced to various menstrual products such as sanitary pads, tampons, period panties, menstrual cups, and cloth pads. Furthermore, it was



explained to the women how to use each product and where they were available in the market. After everyone became comfortable with the subject, the participants were introduced to the pre-workshop survey. It was explained to them in the local language and answers were recorded by the Accredited Social Health Activists (ASHA) workers at the centre and by the researcher. ASHAs are community health workers instituted by the government of India's Ministry of Health and Family Welfare as part of the National Rural Health Mission (Ministry of Health & Family Welfare, n.d.).

Following this, old towels, sewing kits, scissors, cloth pad patterns, and instruction brochures were distributed to each participant. Cloth pad patterns provided by Blue Dinosaurs were used as templates for the workshop. Blue Dinosaurs is an online retail store that sells eco-friendly goods such as bibs, cloth diapers, and wipes (Blue Dinosaurs Blog, n.d.). The cloth pad pattern provided by Blue Dinosaurs is free for personal and business use. The participants were given a step-by-step demonstration on how to make cloth pads. The instruction brochure had a visual representation of each step for better understanding and ease of following along. Participants were allowed to retain the instruction brochures to practice later at home. The instruction brochure is included in Appendix D.

The initial demonstration was made using cloth and stapler pins. This demo helped them to understand how to sew the different layers of the pad together. Samples of stitched cloth pads in different materials and prints were circulated to help the participants understand the concept better. It was explained how the women could customize the length, width, or the core of the pad, depending on their requirements.

Participants had different reasons for attending the workshop. Most of the women at the workshop were excited about this new

idea of being able to make their pads and not having to go out, shop, and spend money on pads. Some attendees were interested to learn to use cloth better, whereas some wanted to learn how to make cloth pads for themselves and their daughters. Since most of the women were housewives and skilled at stitching and sewing, they quickly picked up how to make cloth pads and were excited to make their own, as well as make them for their family and friends.

After the session, the participants were given time to express their views and have an open discussion. Interestingly, several women wanted to know how to use a menstrual cup and where they can buy one. One of the participants asked which size of the menstrual cup she should use if she recently had a C-Section delivery. The answer was sought by inquiring with the doctor on-site, but sadly she was also not aware of the different sizes in cups.



Image 38. Cloth pad made during the workshop by one of the participant

## Insights from the workshop

A total of 17 participants attended the workshop. Only five out of 17 were aware of alternative menstrual products other than sanitary pads and cloth. A few had heard of menstrual cups and tampons, but no one had ever seen these products in person. For the analysis, n represents the total number of participants who answered that particular question. Before, the workshop;

- 76.5% (n=17) of participants use sanitary pads, whereas 17.6% use old cloth as a menstrual hygiene product. The remaining 5.9% use a combination of cotton and cloth.
- Only five out of 13 respondents who use sanitary pads as a primary menstrual care product, have used them for more than ten years. This pattern reflects the recent adoption of sanitary pads as a menstrual product choice by women from lower-income groups.
- According to the participants, the challenges in the use of menstrual products are cost, disposal, leakage, purchasing, washing, and managing heavy flow.
- While choosing menstrual products, participants prioritize ease of use, followed by value for money, and the least concern was the impact of their choice on the environment.
- 42.9% (n=14) believe that disposable sanitary pads do not damage the natural environment after disposal.
- 84.6% (n=13) think disposable sanitary napkins are safe in terms of preventing infections. Whereas, 44.4% (n=9) believe that cloth is not safe in terms of preventing infections during menstruation.
- 87.5% (n=16) of the participants want to reduce their current expenditure on menstrual products.
- 68.8% (n=16) throw their menstrual waste in municipal bins whereas, 25% throw in open areas, and the remaining 6.3% burn their menstrual waste along with other garbage.

After the initial discussion on different menstrual products and the D.I.Y. cloth pad session, the post-workshop survey revealed the following information:

- 87.5% (n=16) participants said that they want to try reusable cloth pads.
- 36.4% (n=11) of participants said that drying the cloth pad is most challenging, followed by washing (18.2%) and making (18.2%) cloth pads.
- 75% (n=16) expressed that they feel more confident after attending the session, and 81.3% (n=16) said that they want to recycle their old clothes to make pads.

In conclusion, the participants lacked awareness about the different menstrual products since they had never seen a cloth pad, tampon, menstrual cup, or period panty earlier. The participants were interested to know about different alternatives, especially menstrual cups. The overall response for the use of cloth pads was overwhelming with 87.5% of participants indicating they wanted to try reusable cloth pads after the workshop. All the participants found the workshop informative and interactive. Attending the workshop gave participants a sense of confidence. Seventy-five percent of the participants said they feel more confident in handling their menstrual cycles after learning how to make a cloth pad.





Image 39. Workshop question and answer session

## Reflection on the workshop

Conducting the workshop and interacting with participants provided more in-depth insights into the landscape of menstrual health and hygiene in India. The participants were comfortable with the surroundings, which allowed the workshop to run smoothly. Charts representing information on menstruation and different menstrual products in the native language were made, which helped to explain the process of menstruation clearly. Having physical samples of various menstrual products such as tampons, sanitary pad, period panties, cloth pad, and menstrual cup sparked curiosity among the participants, and they wanted to have a closer look at the products and understand how they worked.

The participants were proud and happy to express that they use sanitary pads while they were filling the pre-workshop survey. They were affirmative that sanitary pads helped in preventing infections. While talking to them about where the waste goes, most of the participants expressed that they had never thought about it. A key observation was that the participants who used cloth as menstrual blood absorbent showed a higher interest in learning. Teaching the participants to stitch and sew using a simple needle and thread instead of a sewing machine made them confident about the process. Some participants expressed that they found the process easy and would try making pads at home.

Looking back, learning more about participants' current menstrual product choices would have provided deeper insights into consumer behaviour. Adding other questions in pre-workshop survey related to participant's buying and using pattern of menstrual products would have helped in understanding the driving forces influencing consumer behavior. A few questions that could be added are: how long do participants use the menstrual product before changing, from where do they buy the product, challenges while purchasing the product, how much does the product cost them and which brand do they use? Since this research was more focussed on cloth pads and waste disposal habits of participants, they were not asked much beyond their present product choice, how long have they been using it and what are the challenges in its use. Asking the above additional questions could give valuable insights into the current landscape of menstruation in India. Conducting the same workshop in schools and communities close to waste dumping sites would have provided an opportunity to understand the difference in responses depending on the surrounding environment.





Image 40. Government Girls Senior Secondary Smart School, Ludhiana

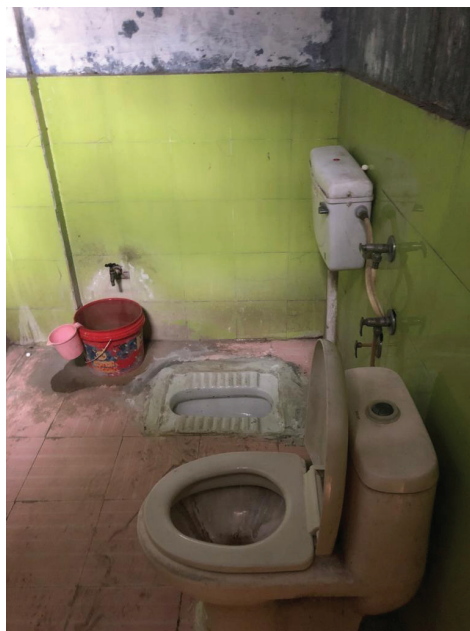


Image 41. Washroom in one of the schools visited



Image 42. Chimney outside washroom to burn menstrual waste



Image 43. Small-scale incinerator inside the washroom for burning pads

## 3.2 Surveys

### For high school teachers

Seven government schools in Punjab, India were visited in order to understand menstrual hygiene management and waste disposal mechanisms followed by different schools. The survey was conducted at three government schools in Punjab. Eleven responses were collected from Government Senior Secondary Smart School, Jalandhar. Twelve responses were gathered from Government Girls Senior Secondary Smart School, Ludhiana, and five responses were obtained from Sant Hira Das Kanya Mahavidyalaya, Kapurthala.

Government Senior Secondary School, Jalandhar, is a co-ed school with nearly 350 female students. During the visit to the school, it was found that girls are provided with free pads sponsored by the Government Civil Hospital, Jalandhar. The school maintains records for the number of pads received and distributed every month. The supply of the pads is irregular, and sometimes the pads are of inferior quality. Recently, the school also received free pads from Always, branded as Whisper in India. The school has built a chimney behind the washroom to burn menstrual waste if the garbage is not collected for more than a week. A local doctor has installed an incinerator machine. However, it is rarely used because it can burn only two to four pads at one time, and it requires a significant amount of electricity, which the school does not want to waste on running an incinerator. Sometimes, girls flush down the used sanitary pads, which blocks the drains. In this situation, pictures of the blockage are sent to the municipal authorities to request them to unblock it.

Government Girls Senior Secondary Smart School, Ludhiana, is an all-girls school with approximately 1,500 students. The school gets free pads from the state government.

Every three months, the school has to report the number of menstruating girls in the school, and the government sends three packets of pads for each girl, to be distributed monthly. Three years ago, a pad vending machine was installed in the school, but it was not in working condition anymore. The school has an incinerator near the staff room financed through teachers' funds. Since it is located near the teachers' room, most teachers are hesitant and ashamed to use the machine, and so are the girls in the school. Menstrual waste is not segregated and is thrown in an open area outside the school. From there, the waste is collected by municipal workers. If it is not cleared up within two weeks, it is burnt. Moreover, the school washrooms did not have soap or sinks for washing hands.

Sant Hira Das Kanya Mahavidyalaya, Kapurthala, is an all-girls college with 600 students from high school to graduate level. The college does not receive pads from the government. There are no separate facilities for menstrual waste disposal. It is collected with regular garbage and thrown in a landfill site near the college.

In addition to these three schools, four more schools and colleges were visited to understand how menstrual hygiene is managed there. Only two out of seven educational institutions visited had incinerators installed. In one school, it was funded by a local doctor, whereas in the other, it was funded by teachers. Further, only two out of seven educational institutes had vending machines installed. In one case, it was self-funded by the institution, and in the other, it was sponsored by the government.



## Insights from the survey

During limited interaction with teachers, while filling out the survey, it became clear that teachers were not aware of different menstrual product alternatives available in the market. Once informed about the options, they were interested to know more about menstrual cups and tampons. They felt they had learned something new, which can be shared with students and others around them. Some teachers suggested conducting the workshop at schools so that interested students, especially from economically weaker sections, can learn to make their pads for themselves. They believed that if students were taught how to make pads out of cloth, they would be happy to use cloth also. Not surprisingly, most of the teachers have never thought about the waste management of menstrual hygiene products. Also, school authorities were not aware of the harmful gases released by incinerators if pads are burnt below a specific temperature. For the analysis, n represents the total number of participants who answered that particular question.

- 100% (n=28) of the respondents use sanitary pads as they feel they are hygienic, easy to use, and readily available.
- 10.7% (n=28) said that they use pads in combination with cloth sometimes.
- 82.1% (n=28) said that they have discussions about menstrual products and their alternatives with the students to raise awareness and to understand the problem of students.
- 81.4% (n=27) said that sanitary pads are safe in terms of preventing infections, whereas only 34.6% (n=26) believed that reusable cloth pads are safe for preventing infections.
- All the participants believed that old cloth is not safe in terms of preventing infections during menstruation.
- 96.4% stated that they recommend sanitary pads to students. One of the

participants stated that she knows cloth is dangerous as she had seen it in advertisements and the movie *Padman*. Therefore, she never suggests using a cloth to students.

- 42% think the waste management system is capable of handling menstrual waste.
- As stated by participants, washing, leakage, discomfort, infections and odor were some of the challenges that students might face while using cloth pads.

### For doctors

Fourteen doctors from Safdarjung Hospital, New Delhi, completed the survey. All the doctors surveyed were women. For the analysis, n represents the total number of participants who answered that particular question.

- 93% (n=14) of the doctors surveyed never used a cloth pad for managing their periods.
- All the doctors use disposable sanitary pads as a menstrual hygiene product.
- 57% (n=14) of the doctors believed that reusable cloth pads are not safe in preventing menstrual infections. From experience, they know that cloth pads need to be used carefully to be a safe option. Therefore, doctors are not very confident in recommending a reusable cloth pad to patients. They were not sure if patients would be able to ensure proper hygiene of the cloth pad.
- 92.9% (n=14) of the respondents recommend disposable sanitary pads for the patients. Hygiene and ease of use of sanitary pads were the primary reasons behind the recommendation.
- 85.7% (n=14) felt that the waste management system is not equipped to handle the menstrual waste, and 78.6% said that sanitary pads are harmful to the environment. Nevertheless, they recommend sanitary pads as they believe that they are hygienically more reliable and that preventing infections is more of a priority than waste disposal.

- Inconvenience in washing, higher risk of infections, unhygienic, and discomfort were major problems listed by participants in association with the use of cloth pads.

In conclusion, doctors and teachers are essential stakeholders in the MHM landscape in India. These stakeholders have a direct impact on the lives of menstruating girls and women. The results of the survey reflect that both doctors and teachers have a preferred choice of menstrual products that they recommend to their patients and students, respectively. The bias towards a particular product can be influenced by media, surrounding myths and taboos, and personal belief systems.

## 3.3 Interviews

Interviews were conducted remotely with people from varied backgrounds such as cloth pad manufacturers, sustainable health practitioners, and experts in the menstrual health domain in India. A total of seven interviews were conducted, and key insights were synthesized from interview data. For writing the insights, the first name of the interviewees has been used to address them.

The insights are grouped as follows:

### 1. Sanitary pads are perceived as superior menstrual health products, and cloth pads are deemed regressive

Sanitary pads are considered the most effective solution to menstrual health problems. The Indian government is investing heavily in disposable sanitary pads to meet the basic hygiene needs of rural women. People are getting free sanitary pads from the government and NGOs but no knowledge about its use and disposal, which is a matter of concern. According to the interview with Sneha, "providing sanitary pads is the easiest thing, but it does not help in building the kind of awareness that is required in the society."

According to interviewees Kathy and Rajasi, commercially branded sanitary pads pose health risks as the product itself is unsafe for use due to toxic chemicals in its composition. Both Tanya and Rajasi stated that sanitary pads are viewed as aspirational products by rural women, and there is a social status associated with it. Young girls see cloth as regressive, something which their mother or grandmother used. It does not resonate with the image of a modern Indian woman. According to Kathy, the narrative that a disposable sanitary pad is the most superior menstrual product and should be the only rational choice for a sensible woman, needs to be challenged.

### 2. Lack of statistical data on mass acceptance hinders cloth pad use as the mainstream choice for government healthcare schemes

Cloth has been used as a menstrual absorbent for centuries in India. According to Kathy, Indian women are culturally happy with cloth, and they are comfortable in using it. In the experience of Kathy, Sneha, and Bharti, several anecdotal pieces of evidence assert that people are contented to use cloth pads. Despite these positive responses, there is a lack of statistical data on the approval rate of cloth pad as a menstrual product of choice. According to Omkar, the absence of data acts as the most significant barrier for cloth pad manufacturers in getting the government on board to subsidize cloth pads. Kathy shared that Tamil Nadu's health officials visited the Eco Femme's manufacturing unit in Auroville to study and understand the process of cloth pad production. However, the officials were apprehensive about procuring cloth pads for government healthcare schemes. Omkar and Bharti were facing the same challenge in securing government support and funding. According to Bharti, "Government is subsidizing sanitary pads, and they are doubtful that women will change their habits." As part of the initiative, Yardi Vasti Vikas



Prakalp (YVVP), Yardi Systems Inc. buys Eco Femme's washable, reusable cloth pads and distributes them in Pune slums. As stated by Bharti, there is a problem of cleanliness in slums. Women flush down their sanitary pads or fold and stick them in the windows. For the last five years, the organization has been trying to collect data and map the impact of cloth pads usage on the waste management system in urban slums of Pune. Allforasmile Foundation is also recording data on the adoption of cloth pads under the initiative Pad for Daughters.

### **3. Multinational corporations' advertisements promote the use of disposable sanitary pads and demean the image of cloth**

As seen in the literature review, multinational corporations such as P&G, Johnson and Johnson, and Kotex are using media as a tool to push disposable sanitary pads to different segments of Indian society. As Kathy pointed out, "big companies depend on lack of awareness of customers." Omkar highlighted this in his discussion that media advertisements talk superficially about the disposable sanitary pads and do not state the real composition of plastic pads. Kathy expressed her concern about the use of a disposable sanitary pad due to its toxic composition.

According to Rajasi, media advertisements are misleading and do not give a clear picture of hygiene. Gel-based sanitary pads are shown to absorb more blood and give out the indication that it can be worn for long durations. Such advertisements give an incorrect message to sanitary pad users who assume it is safe to use a single pad for an increased duration as pads have more capacity to absorb blood. Such unhygienic practices can lead to urinary tract infections or reproductive tract infections.

In the act of promoting disposable sanitary pads as a hygienic solution, MNC's advertisements are comparing disposable

sanitary pads to the use of cloth. According to Sneha and Prachi, MNCs are demeaning cloth as a menstrual blood absorbent to sell plastic pads. Such comparison promotes the ideology that cloth pads are not safe for use. Moreover, they expressed that cloth users are a target audience for big disposable sanitary pad corporations. As stated by Tanya, "advertisements are taking a low cost traditionally available solutions away from people." Further, she highlighted that these advertisements are influencing young girls and making sanitary pads an aspirational product for traditional cloth pad users.

### **4. Challenges for cloth pad users**

Taboos and stigmas associated with menstruation make the use of cloth pads as a menstrual absorbent very challenging. According to Sneha many rural women believe that "menstrual cloth is something that should be hidden, and no one should see it; otherwise, something evil will happen." This ideology to keep menstruation discrete has made washing and drying of cloth pads the most prominent challenge in its use. Difficulty in the drying of cloth pads by users was identified as a barrier to cloth pad adoption by all the interviewees.

As discussed by all the interviewees, the lack of infrastructure such as bathing spaces, availability of clean water, changing facilities in schools, and clean washrooms act as obstacles in the use of cloth pads. According to Kathy, "there is no resistance to the use of cloth as a material, but it is the issue of drying. Therefore, Eco Femme came up with foldable cloth pads design." Yardi System Inc. ran a pilot program in association with Eco Femme to study the acceptance of cloth pads by rural women in the slums of Pune. In the program, it was seen that women preferred the foldable cloth pad design. Hence, under the YVVP initiative, 1,500 women were provided with three foldable cloth pads and one regular cloth pad from Eco Femme. Some of the challenges put

forward by the women using cloth pads in Pune's slums were: cloth pads are difficult to dry in monsoon season and the length of the cloth pads must be slightly longer.

Another challenge highlighted by Kathy and Omkar in the use of cloth pads was the shifting of cloth pad from its place, which can lead to stains. Unlike disposable sanitary pads, there is no adhesive to keep cloth pads in place. The cloth pads have buttons to secure them to underwear, but depending on the design of the cloth pad, it may or may not work for some people. Allforasmile Foundation is working with users to improve the design of cloth pads to prevent them from shifting.<sup>[10]</sup>

Since cloth has been used for many centuries in India, it is not seen as a progressive option, especially by urban women. In Omkar's experience, most of the urban educated women think cloth is unhygienic. According to Kathy, there is a psychological barrier of leakage and stains, which is preventing potential users from trying cloth pads in the first place. As discussed by both Kathy and Omkar, there is a high prevalence of aversion to menstrual blood in urban women. The resistance to menstrual blood acts as a barrier to washing of cloth pads, making it the biggest challenge in urban customer segment. Bharti mentions that some women consider menstrual blood impure, which is one of the reasons why people do not want to touch it. According to Omkar, there is ongoing research on how to wash cloth pads without touching menstrual blood.

### **5. Challenges faced by cloth pad manufacturers**

For context, in India, most sanitary pads cost between Rs.5 to Rs.12 (\$0.09 CAD to \$0.22 CAD) per pad, which is a luxury for nearly 800 million people living on less than \$2.67 CAD a day (Rodriguez, 2019). The Indian government is providing sanitary pads at a cost as low as Rs.1 (\$0.05 CAD) under the

Suvidha government program (Dey, 2019). As calculated from an array of products available at the Hygiene and You website, the average cost of a single cloth pad is Rs.150 (\$2.70 CAD). Hence, cloth pads are generally more expensive than disposable sanitary pads. However, as mentioned by Omkar, a single cloth pad can be reused up to three years, which brings down the average cost of cloth pads to 33% of disposable sanitary pads if calculated over its complete life cycle.

According to Tanya, sustainable menstrual alternatives such as cloth pads and cups have a high upfront cost, which is difficult for rural women to pay at once. Therefore, there is a need for innovative financial solutions to make such products more affordable and accessible to the rural audience. As reported by Kathy and Omkar, the cost of a cloth pad is not a hindrance to the urban market. Organizations such as Eco Femme, who have been able to establish a paying customer base for its products, are using the profit from sales to incentivize cloth pads for marginalized women through its distribution programs such as Pad for Sisters and Pad for Girls. This model is not feasible for startups or new ventures looking to serve rural markets. The company does not have a paying customer base to keep the subsidized operations running in rural markets. Thus, in the absence of funding from government or investors, it is financially unviable to run the business focussed only on rural market.

Bharti, who is the CSR (corporate social responsibility) head at Yardi systems Inc. stated that even the CSR departments of large companies cannot keep giving out free cloth pads. Bharti is trying to calculate how much women living in slums can contribute to the purchase of cloth pads. In her opinion, by not giving cloth pads for free, users will value the product more.

Both Kathy and Omkar report that the

biggest challenge for the cloth pad manufacturers is setting up a retail business. Most of the cloth pads are sold through online channels such as the company's website, Amazon, and other online platforms selling sustainable products in India. Kathy states that "Retail business is a big bottleneck." Since cloth pad manufacturers are not getting any government funding, it is challenging to bring down the cost of cloth pads without compromising on the quality of the product. According to Omkar, "Cloth pad business is effort-intensive, and the progress is slow. The cost of customer acquisition is high, and repeat purchases are delayed."

#### **6. Issues in government procurement**

As discussed by the interviewees and the challenges faced by cloth pad manufacturers, subsidized disposable sanitary napkins are available to the rural population at a fraction of the cost of cloth pads. The growing adoption of disposable sanitary napkins is overwhelming the waste management system with menstrual pad waste. According to Sneha and Omkar, the cost of the product is an essential parameter in government procurement schemes. According to Sneha, the government is procuring disposable sanitary pads at low cost from China, which does not adhere to quality standards listed by the Bureau of Indian Standards. As suggested by Omkar, the government should calculate the total cost of disposable sanitary pads by considering the cost of procurement as well as the cost of waste management and the installation of incinerators. As stated by Omkar, "the cost of disposable sanitary pads is externalized to the cost of health, cost of waste management, and cost of the environment." While talking about the overall cost of the cloth pads, Omkar stated, "Since cloth pads are reusable and can be used up to three years, the cost of cloth pads roughly comes out to 33% of that of a sanitary pad in the long term."

As highlighted by Tanya, there are defined standards only for disposable sanitary pads in India, while for other menstrual products such as cloth pads and menstrual cups, the standards are missing. Presently, the Bureau of Indian Standards is working on framing guidelines for menstrual cups and cloth pads. Further, she discussed how a lack of standards is reducing the authenticity of the products. In her experience, most cloth pad manufacturers are unaware of the technical specifications of the product, such as performance in terms of soaking capacity, bacteria load, durability, and drying time. Moreover, she points out a lack of awareness among cloth pad manufacturers regarding testing facilities, costs, and requirements. This lack of awareness coupled with limited data on cloth pads adoption, makes cloth pads as less credible product among government and new users.

#### **7. Small scale incinerators are not the best solutions for menstrual waste management**

As discussed in the literature review, small scale incinerators are a popular way of handling menstrual waste in India. Omkar expressed that people think the problem is solved by installing incinerators, but that is not true. The incinerators installed are often not in line with the required standards, and as a result, emit carcinogenic gases that are bad for health and pollute the environment. Tanya mentioned that the standards for small scale incinerators are set by Central Pollution Control Board (CPCB) however, the implementation of these standards depend on individual states. Due to difference in state guidelines throughout India, each state's procuring policy, standard checks and on-the-ground implementation plans varies. Hence, a product that has been approved by a state government may still have harmful side effects.

#### **8. Stakeholder bias**

Stakeholders such as teachers and doctors play a critical role in influencing menstrual product choice and defining menstrual habits for young adolescent girls. As these stakeholders have personal preferences and biases towards certain menstrual products, they disseminate those biases to their students and patients, respectively. According to Sneha, teachers and doctors are influenced by surrounding taboos around menstruation. Doctors and teachers need to be sensitized and trained in the menstrual hygiene domain so that they propagate unbiased, healthy, and informed menstrual practices to the users.

As stated by Omkar, there is ambiguity among doctors regarding different menstrual products. There is a lack of consensus within the system on what are safe and hygienic products for menstrual use. In Rajasi's experience, generally, doctors are not aware of alternative menstrual products such as menstrual cups and cloth pads and consider these products unhealthy. According to Kathy, doctors can be biased individuals. In her experience, she has come across an educated doctor who held the belief that using menstrual cups makes girls sexually active.

#### **9. Role of men**

As represented in stakeholder analysis, the family is a primary stakeholder in the life of a menstruating girl. Fathers, brothers, and other men in society play a vital role in shaping the surroundings of menstruating girls. Omkar mentioned men as one of the most critical stakeholders in the MHM landscape in India. Patriarchy is still prevalent in Indian society. Tanya talked about the need to teach men about menstruation as it is men who enforce most of the norms in society.

According to Kathy, bridging the gender gap by involving men in the system and

educating them can help change the landscape. Sneha reported that men conduct most of the awareness sessions as part of Goonj's educational outreach in rural areas. Bharti mentioned that under the initiative YVVP, the organization provides life skill education to women as well as to men. She believes that including men in training helps them to learn about responsible behavior, menstruation, reproduction, and gender equality.

#### **10. Positive impacts in adoption of cloth pads**

In Sneha's experience, it is easier for rural women to adopt cloth pads as compared to sanitary pads since rural women have been using cloth as a menstrual blood absorbent for a very long time. A recent project conducted by Allforasmile Foundation in 2019 at schools in village Pasli, Taluka, and Velhe in Pune, highlighted that more than 50% of the participants want to adopt cloth pads as their first choice of menstrual hygiene product. As explained by Omkar, a total of 97 girls participated in the study, and the project was conducted over six months. Girls participating in the study who chose to switch to cloth pads reported that disposable pads used to cause irritation while cloth pads were very soft and comfortable to use. Also, they did not have to worry about disposal. In another project undertaken by Omkar's organization, a 30% adoption rate was reported for cloth pads among women from urban slums.

Bharti stated that under the initiative YVVP, women from urban slums reported fewer doctor's visits, reduction in infections and itching, and cleaner surroundings in the community. Further, Bharti explained that 150 women who received cloth pads under the same initiative asked for replacements for their cloth pads after three years. Similarly, Rajasi highlighted that people are switching to cloth pads after experiencing rashes from using disposable sanitary pads.

Omkar shared a personal experience about his daughter having severe rashes because of the use of disposable sanitary pads. As a father, he wanted to help his daughter and after researching about different menstrual product alternatives, suggested her to use cloth pads. Once his daughter started using cloth pads, the problem of rashes disappeared. This incident was a turning point in his life. Following that, he decided to enter the domain of sustainable menstrual health.

According to Sneha and Prachi, women who work at Goonj's cloth pad manufacturing site in Delhi feel empowered as they understand menstruation and believe in the product they are producing. Families of the female employees believe that these workers are bringing new perspectives to the community and adding to the household income. In one of the examples discussed during the interview, Sneha and Prachi explained that one of the production line workers was referred to as a nurse in her local community as she knew the process of menstruation and different menstrual products.

#### **11. Education on informed choice**

Due to lack of education and awareness, women are not informed about various menstrual products such as period panties, cloth pads, tampons, menstrual cups, and sanitary pads. All the interviewees emphasized the need for informed choice. Interviewees used the term informed choice in the context that women and girls should be made aware of different products available in the market, how to use these products, and the impact of each product on health and the environment. After knowing about different products, women should be free to use the menstrual product of their choice.

Kathy explained that every organization that approaches Eco Femme for cloth pad distribution is asked not only to provide pads but also to establish a dialogue

with the community. The organization is provided with a training program tailored to its unique needs. The program includes training on talking about menstruation, the reproductive system, cultural practices around menstruation, self-care, and different products available to manage menstruation. She always asks the organization to place the order for cloth pads after the response from a small pilot project. This method gives women the power to make informed decisions and ensures that the organization is not forcing a choice on them.

Rajasi shared that under her campaign Bleed Red Go Green she conducts workshops on making cloth pads. She also runs awareness sessions on the harmful effects of sanitary pads, the impacts on waste management, and the choice of sustainable menstrual products available. Sneha and Prachi also mentioned informed choice is a part of the awareness workshops undertaken by Goonj.

# 04

## RECOMMENDATIONS

### 4.1 Recommendations

The literature review and the data synthesis of interviews and surveys clearly illustrate that the menstrual hygiene landscape in India is complex and has multiple stakeholders. There are numerous challenges associated with the menstrual health needs of girls and women that must be addressed throughout the country and across all sections of society. The following are the opportunities identified which need to be approached to improve the state of menstrual hygiene in India.

#### **1. Menstruation normalization**

With the majority of girls unaware of menstruation until menarche, it is evident from the literature review that young girls lack access to information about menstruation. Furthermore, due to the taboos associated with the process of menstruation, the topic is discussed in hushed tones even until today. As derived from the method of using CLA, the secrecy around menstruation needs to be challenged and it must be established as a natural process. Awareness across different stakeholders is required to promote an environment free from taboos.

Rajasi, a researcher at Mahatma Gandhi Institute of Medical Sciences and Kathy, co-founder of Eco Femme, proposed in their interviews that there must be a comprehensive education plan at schools for not only the biological facet of menstruation but also the accompanying emotional, physical, and mental changes that an adolescent girl undergoes. Omkar, CEO of Allforasmile Foundation discussed the need to raise awareness among men about

menstruation, which can profoundly help in shedding taboos and remove the veil of secrecy from menstruation. Along with that, he emphasized the critical role that teachers play in disseminating information to students in school. Thus, teachers must be provided with adequate training and resources to support young adolescents, especially during puberty.

#### **2. Informed choice**

Most of the rural women and school-aged girls from lower income families receive disposable sanitary pads through government schemes at a subsidized rate. The substantial focus of government policies on promoting disposable sanitary pads has kept women uninformed about multiple alternatives such as cloth pads and menstrual cups. In the interview with Kathy, she stated that the narrative created by sanitary pad advertisers about disposable pads being the only hygienic option for women must be critically examined and questioned. Repercussions of using disposable pads for the user, as well as the environment, must be highlighted.



This knowledge enables the consumer to make an informed choice and prevents big corporations from selling its products by taking advantage of the consumer's ignorance. Women should be made aware of different kinds of menstrual products available in the market, where to find them, and how to use them.

The Ministry of Health, which sponsors the pad distribution program, should also run ad campaigns on radio and television. The ads must inform people about proper usage of menstrual products, and possible health risks like rashes and infections arising from the inappropriate use of pads. The ASHA workers, which act as the liaison between women and the government, should be adequately trained to guide rural women about different menstrual products and their correct usage. Along with disposable pads, menstrual products like cloth pads and menstrual cups should also be procured by the government and be provided under the subsidised programs to give choice of products to women and girls.

### 3. Policy transformation

As observed in the literature review, the state and central government in India lack coordination in tackling menstrual health issues. The stakeholder analysis represents the different government departments working in silos with little collaboration. Tanya, founding member of Menstrual Health Alliance India, suggested that different government departments need to cooperate among themselves and work together to modify policies in the areas of menstrual product standards, menstrual product procurement, and waste management. Menstrual waste disposal and collection policy has been an under-prioritized area that must be taken seriously. Sneha, program head for NJPC initiative at Goonj, pointed out that just handing out sanitary pads is not the solution to the problem. Menstrual health must remain on the radar for policymakers, and a cross-ministerial committee should be set up to

overlook the drafting and implementation of policy changes in the spheres of menstrual product standards, product procurement, and waste management.

### 4. Building infrastructure

As shown in the literature review and journey mapping, there is a lack of gender-separate sanitation facilities in schools, rural households, urban slums, and shared public places in India. There have been initiatives from the government like Swachh Bharat Abhiyan, a nationwide campaign aimed at achieving sanitation coverage, which have invested in building infrastructure and WASH facilities all over the country. Even if the toilets are there, girls cannot use the facilities if there is a lack of sanitation, disposal options, privacy, and consistent water supply. Therefore, these initiatives need to be ramped up to provide better facilities for menstruating girls and women so that these amenities can be used properly.

As the primary focus of this MRP is on cloth pads, the following recommendations specifically target government officials and cloth pad manufacturers in order to address the barriers in adoption of cloth pads as identified through the research.

#### Recommendations for cloth pad manufacturers:

As stated by Tanya in the interview, presently, there are no official standards set by the Indian government with regards to cloth pads. While it is essential to keep pushing for standards, cloth pad manufacturers should adopt standards from other developed countries like the USA and Canada, and have pads certified from testing labs in these countries. This standard compliance will provide authenticity to the product and make the customers understand that cloth is hygienic. This increased awareness will nurture the required trust between consumers and cloth pad companies.

There is enough evidence from the research conducted by Omkar's organization that the adoption rate of cloth pads is higher when it is introduced to girls at an early age. Thus, the pad manufacturers must communicate with young girls by partnering with schools and involving teachers in initiating a dialogue with students about menstruation, benefits of using cloth pads, correct usage techniques, and full lifecycle impact of different products. This initiative might also reap double benefits if the girls can convince their mothers to use cloth pads, which is otherwise a difficult task for the cloth pad companies since it requires massive consumer outreach involving high marketing costs.

Financial sustainability is the goal of any organization operating in the consumer goods market. Cloth pad companies wanting to serve the rural segment cannot rely on donations and government subsidy as a long-term option. Since the majority of rural customers cannot bear the full cost of the product, it is vital to have paying urban customers on board to keep the cash flow of the company running. It was discovered during interviews that there is a pushback from urban women in terms of washing cloth pads. Thus, it is recommended that clothpad manufacturing companies invest in research and development of a product that reduces contact with the cloth pad while washing. This product can minimize the convenience gap between reusable and disposable pads. Jathan Sansthan, a not-for-profit organization, working with rural communities of Rajasthan, India, is incubating a design project which aims to develop a machine that provides a quick and easy way to remove stains from cloth pads, thus eliminating the burden to wash the cloth pad by hand<sup>[11]</sup>. Such interventions have the potential to convince urban users to make a switch to adopting sustainable cloth pads as their product of choice.

Omkar mentioned in the interview that one of the biggest challenges in promoting cloth pads is the mobilization of community members and talking to them about cloth pads. The community mobilizers for menstrual products need to be trained so that they can guide girls and women appropriately. Eco Femme has a program called Training of Trainers, which builds the capacity of facilitators to instruct sessions on managing periods healthily and with dignity. With this training and support for setting up a small cloth pad manufacturing unit, members of self-help groups (SHGs) in rural areas can be equipped to become influencers in their community and franchise owners of decentralized cloth making pad units. Production of cloth pads provides a unique opportunity for SHGs and small and medium enterprises (SMEs) to set up decentralized manufacturing units that can employ local women to make cloth pads for their local community and generate a livelihood. Many companies manufacturing bio-degradable pads are engaging in this model to scale the business rapidly. It serves the dual purpose of making available sustainable menstrual products down to the grassroots level as well as supporting the local community financially. Eco Femme and Jathan Sanstha are both supportive of this model and have incubated pilot projects which have shown excellent results. It is recommended that cloth pad manufacturers follow this decentralized model to scale their operations. They must empower local women at the village level and facilitate them in becoming franchise owners of cloth pad manufacturing businesses.

### Recommendations for the government:

The government needs to set standards for cloth pads and establish testing and certifying labs. This initiative will reduce ambiguity for cloth pad manufacturers and provide an opportunity to innovate and create affordable products without compromising quality. Once a standard is established, misinformation about cloth can be put to an end, and the focus of cloth pad companies can shift towards creating a dialogue with customers and educating them about the proper usage of cloth pads.

As Omkar pointed out in the interviews, the procurement policy of the government is primarily driven by the economics of the upfront cost of the pads. Since pad manufacturers have externalized the disposal and environmental cost of disposable pads, cloth pads seem like an expensive alternative. The government needs to alter the procurement policy and measure the cost over the full lifecycle of the product. Cloth pads will turn out to be a cheaper and sustainable option, approximately 33% cheaper, according to estimates by Omkar.

Bharti, Kathy, and Omkar all pointed out the lack of data in terms of cloth pad adoption due to which the government officials did not consider subsidizing cloth pads for mass distribution in economically weaker sections of the society. The government can take the initiative of experimenting with the concept by adopting a model village and distributing cloth pads to all girls and women in the village. A thorough study can be conducted, and various metrics like the overall cost, adoption rate of cloth pads, improvement in menstrual health, improvement in the cleanliness of the village can be studied over two years. The results from the experiment can be used to decide on whether to make a substantial economic investment and replicate the program in multiple states.

The education curriculum in schools lacks the requisite information that adolescent girls need, especially during puberty. It was observed in the literature review that mothers, who are the primary source of information for most young girls believed that menstruation is dirty. Given this context, most adolescent girls do not get correct information and are not at all prepared for menstruation. There must be an intervention in the school curriculum to include comprehensive education about menstruation and puberty. Creative new media like Menstrupedia -- graphic novels that deliver informative and entertaining content on menstruation in a playful manner -- must be a part of the school curriculum. Innovative games such as The Period Game, which gamifies the menstruation experience and covers all possible information girls need to understand about their periods must be introduced. It will make them comfortable with the process and encourage them to talk openly about menstruation.

The waste generated by the use of disposable sanitary pads is putting tremendous pressure on the waste management system, a system not equipped to collect and process the waste in vast quantities. There must be a policy intervention, which makes the waste producer (pad manufacturing companies) responsible for safe disposal and/or recycling of the waste. An example is a diaper and sanitary napkin recycling plant set up by P&G in Italy to recycle the soiled products and obtain constituent materials like cellulose and absorbents (Clancy, 2012). Either similar model can be followed in India, or the disposable pad manufacturers must be obligated to pay for processing this waste in terms of an environmental and waste processing tax.

## 4.2 Conclusion

Menstruation is a natural bodily process, and it should be treated as a blessing, and not a curse. Shedding of stigmas and taboos are essential to make girls and women comfortable with their periods. Men and women should both be educated on menstruation to break the silence around this topic. Multinational corporations have been capitalizing for years on the shame and silence surrounding menstruation. The corporations have always tried to make menstruation discrete and in so doing, feed into the belief that it should be hidden.

Menstrual hygiene products are a primary need for women and girls, and in many parts of India, women still struggle for this basic necessity. Disposable sanitary pads are seen as a quick fix by the government and some philanthropic organizations, however in the long run, this solution poses many more problems such as increasing waste and higher health risks for women. As women in India have been using cloth to manage their periods for many centuries, this research project explored how the traditional practice of using cloth can be leveraged to address the menstrual needs of rural women as well as tackle the problem of waste management across India.

The intent of the research was to use the lens of sustainability to understand the landscape of menstrual health and hygiene in India and to contribute to the solutions needed to overcome the problem of menstrual waste. By exploring the role of different stakeholders in the Indian landscape, insights were framed for two key stakeholder groups: government and cloth pad manufacturers. There is a need to strengthen the foundation of menstrual health management in India by incorporating all stakeholders. Looking at individual pieces, such as education and sanitation, is not enough. The issue of menstrual hygiene needs to be analyzed and evaluated through a broader lens that includes waste management, sexual health, reproductive health, environment, and gender equality. The well-being of millions of women and the health of the natural environment in India are at stake. Cloth pads can be used as an apparatus to help bolster the foundation of MHM in India and shift the landscape of menstrual hygiene to sustainable alternatives.

### Takeaways from the research

It is important to understand that menstruation is a monthly phenomenon, and the adoption of new products requires a change in the habits of the users. Therefore, to calculate the impact of a new product such as cloth pads in this research project, the field research needs to happen over a longer period of time to record the challenges in adoption. Further, even though cloth pads are something that can be easily made at home, there are too many variables associated with its making that change the experience of using one cloth pad from another. Few such variables are: material and quality of cloth used, design of cloth pad, and washing technique. Since there are no set standards in India regarding the manufacturing of cloth pads, the quality and construction of cloth pads can vary from manufacturer to manufacturer. Therefore, in the researcher's opinion, until standards of cloth pads are finalized, research involving cloth pad should give detailed specification of the product used in the study. Doing this will help to compare findings of different research studies on cloth pads.



## END NOTES

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### 1. Baala

Baala is a youth-led organization committed to making menstruation a non-issue in India. Baala (meaning young girl in Hindi) aims to tackle problems in India like the expense of modern sanitary products, the problem of disposal, complete lack of awareness and the social taboos surrounding menstruation. They do so by a mix of awareness workshops and training sessions. They also work towards shifting menstrual practices of Indian women towards affordable and reusable options by distributing a kit of three reusable cloth sanitary pads to each girl.

Website link: <https://www.projectbaala.com/>

### 2. Goonj

Goonj is an NGO working towards addressing the gaps and challenges of menstrual hygiene and management for women by engaging comprehensively with all key stakeholders. They untiringly motivate urban masses to contribute cloth for making 'MY Pads' cloth sanitary pads for women who struggle for this basic necessity. Their efforts are dedicated to addressing menstrual problems in rural India by a Triple-A approach on menstrual hygiene: Access, Awareness, and Affordability.

Website Link: <https://goonj.org>

### 3. Jatan Sansthan - Uger pads

Jatan Sansthan is a grassroots not-for-profit organization working with rural and resource poor communities in the state of Rajasthan, India. The organisation works on programs related to children, young people and women in the areas of health and education. The Uger Project started in 2011. "Uger" meaning "new beginnings" in the Mewari language signifies breaking silence around the subject of menstruation, promoting menstrual health and combating the growing use of disposable products and bringing back respect to reuse. This has been done by the design and development of Uger reusable cloth products – such as nappies and diapers. Workshops are routinely conducted for young people, both men and women across different communities and demographics, sensitizing people to all aspects of reproductive and menstrual health.

Website link: <https://jatansansthan.org>

### 4. Menstrupedia

Menstrupedia is a friendly guide to periods which helps girls and women to stay healthy. The organisation aims at delivering informative and entertaining content through different media including comics and videos. The media sources include information on reproductive health, puberty, and sexuality for pre-teens and teens. The Menstrupedia comic guide is used by more than 7500 schools, 270 NGOs to educate the youngsters and demystify the science of menstruation for them.

Website link: <https://www.menstrupedia.com>

### 5. Women's Voices for the Earth (WVE)

Women's Voices for the Earth is an organization run by women, that recognize and uplift the connections between gender, health, class, race, and the environment. WVE leads tens of thousands of advocates across the country in campaigns to increase corporate accountability and transparency, enact health-protective laws, and take steps to reduce toxic exposure in

their lives. Using a combination of market-based campaigns and policy efforts, they are shifting the marketplace to prioritize women's health over profit. They highly focus on researching and revealing the toxic chemicals used in period products like disposable pads and tampons.

Website link: <https://www.womensvoices.org>

### 6. Pad for Pad initiative

Pad for Pad is an initiative by Eco Femme (a women-led social enterprise based in Tamil Nadu, India focusing on revitalizing menstrual practices in India) connecting customers and adolescent girls in India through the shared experience of menstruation, respect for human bodies, and love for the earth. The need for safe learning spaces and the growing challenge of dealing with sanitary waste across India inspired this movement to educate girls under 19 years of age about menstrual equity, hygiene, and disposal through their partnership with government schools in Tamil Nadu and organizations across India. The revenue collected by selling of Eco Femme cloth pads goes into financing various programs led by the organization. For more information: <https://EcoFemme.org/in-action/pad-for-pad/>

### 7. Pads for Sisters initiative

Eco Femme is a women-led social enterprise based in Tamil Nadu, India focusing on revitalizing menstrual practices in India which are healthy, environmentally sustainable, culturally responsive and empowering. The organisation launched 'Pads for Sisters' in October 2013 in order to make cloth pads accessible to economically disadvantaged women (over 19 years old) who would not otherwise be able to afford or access the pads at commercial pricing. Under this programme, they provide cloth pads in bulk at a subsidized price which reflects the willingness of Women Self Help Group members to pay (based on research and market trials). Alternatively, for organizations or clubs interested in sponsoring cloth pads for women who otherwise could not afford the products, they offer bulk rate discounts.

For more information: <https://EcoFemme.org/in-action/pads-for-sisters/>

### 8. Anandi - Aakar Innovation

Anandi pads are produced with locally sourced agri-waste. These pads are capable of disintegrating into natural elements in a compost environment within 90 to 180 days, depending on varying environmental factors. Each Anandi pad is manufactured in a woman-supervised and woman-employed mini-factory. This setup provides an opportunity for local women to become employed, learn entrepreneurial and marketing skills, and even take up management roles within their community.

Website link: <https://aakarinnovations.com>

### 9. Water hyacinth pad

Water hyacinth is the world's fastest growing aquatic weed. It multiplies rapidly by forming a dense layer across the surface of ponds, lakes, and even rivers. Water hyacinth is used a raw material to make biodegradable sanitary pads. The pads are in prototyping and testing stage. The manufacturing process for the pads includes collecting, cleaning, cutting, and sterilizing water hyacinth stalks. The absorbent layer is made using stalk mixed with cotton, which is sandwiched between a top and bottom layer made of cotton. Beeswax is used to seal the barrier layer. Lastly, the pad goes through UV sterilization. Though the product has not been released commercially yet and is awaiting a patent.

Source: <https://swachhindia.ndtv.com/waste-to-wealth-kerala-students-innovates-low-cost-biodegradable-sanitary-napkins-from-water-hyacinth-34384/>

**10.** The Allforasmile Foundation video discusses the process of designing cloth pads that will hopefully tackle the problem of shifting of pads during use.

Link to video: <https://www.youtube.com/watch?v=QSjBHUhrmOw>

**11.** The prototype machine was developed by an exchange student at the National Institute of Design, India. Much of the resistance towards reusable sanitary pads stems from misconceptions around hygiene and aversion to menstrual blood. This washing device aims to provide a quick and easy way to remove stains, closing the convenience gap between reusable and disposables.

Project link: <http://jatansanstan.org/projects-on-sustainable-menstruation-management/>

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# APPENDICES

## Appendix A: List of Acronyms

1. ASHA - Accredited Social Health Activist
2. CLA - Causal Layered Analysis
3. CSR - Corporate Social Responsibility
4. MH Alliance - Menstrual Health Alliance
5. MHAI- Menstrual Health Alliance India
6. MHM - Menstrual Hygiene Management
7. NFHS - National Family Health Survey
8. NJPC - Not Just a Piece of Cloth
9. NGO - Non-Government Organization
10. P&G - Procter & Gamble
11. RTI - Reproductive Tract Infections
12. SAP - Superabsorbent polymers
13. SHG - Self-help group
14. SME - Small and Medium Enterprises
15. SWaCH - Solid Waste Collection and Handling
16. SWM - Solid Waste Management
17. TED - Technology, Entertainment and Design
18. WASH - Water, Sanitation and Hygiene
19. UNICEF - United Nations Children's Fund
20. WSSCC - Water Supply and Sanitation Collaborative Council
21. WVE- Women's Voices for the Earth

## Appendix B: Sources for timeline

### a. Sources for timeline of menstrual products on page 6-9;

1. 1884 Farr Menstrual Receptacle. Catamenial Patents. (2015, August 1). <https://catamenialpatents.wordpress.com/2015/08/01/1884-farr-menstrual-receptacle/>.
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3. Lister's Towels | Johnson & Johnson - Content Lab U.S. <https://www.jnj.com/tag/listers-towels>.
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12. Feters, S. by A. (2015, June 1). The Tampon: A History. The Atlantic. <https://www.theatlantic.com/health/archive/2015/06/history-of-the-tampon/394334/>.
13. Eco-Friendly Menstrual Products. GladRags.com. <https://gladrags.com/>.
14. About Softdisc. <http://softdisc.com/about/>.

15. Our Story: The Story Of Mooncup. Mooncup. <https://www.mooncup.co.uk/who-we-are/our-story/>.
16. Eveleth, R. (2016, January 5). The Science Behind Period&nbsp;Underwear. Racked. <https://www.racked.com/2016/1/5/10708976/period-underwear-technology>.
17. For People with Periods. Thinx. <https://www.shethinx.com/>.
18. Hoffman, E. Dear Kates Underwear - High Performace Sport Collection. Dear Kates Underwear - High Performace Sport Collection. <https://www.refinery29.com/en-us/dear-kate>.
19. Activewear. Dear Kate. <https://www.dearkates.com/collections/activewear>.
20. The first reusable tampon applicator. DAME. <https://wearerdame.co/>.
21. A Little Bit of Silicone, A Whole Lot of Confidence. UltuCup. <https://ultucup.com/>.
22. Menstrual Extraction. Womens Health Specialists. <https://www.womenshealthspecialists.org/self-help/menstrual-extraction/>.

### b. Image tags and sources for timeline of menstrual products on page 6-9;

- Image1.** Farr menstrual receptacle by Aralyn from [www.flickr.com](http://www.flickr.com), Link: [https://www.flickr.com/photos/biomedical\\_scraps/6832799883](https://www.flickr.com/photos/biomedical_scraps/6832799883)
- Image2.** Lister's Towels from Johnson & Johnson archives, Link: <https://ourstory.jnj.com/sanitary-napkins-ladies>
- Image3.** Sanitary bloomers poster from helloclue website, Link: <https://helloclue.com/articles/culture/a-short-history-of-modern-menstrual-products>
- Image4.** Sanitary apron box from Periods of History – The Rise of Sanitary Solutions, Link: <https://www.direct365.co.uk/blog/rise-of-sanitary-solutions/>
- Image5.** Sanitary apron designed by Leah G Milkes from Catamenial Patents,Link: <https://patents.google.com/patent/US1108206>
- Image6.** Kotex pads advertisement poster from Wisconsin Historical Society, WHS-7001,Link: <https://www.smithsonianmag.com/innovation/surprising-origins-kotex-pads-180964466/>
- Image8.** The cover of an instructional manual for the Tassette, possibly from the early 1960s by Kelly O'Donnell, Link: <https://psmag.com/news/why-has-it-taken-the-menstrual-cup-so-long-to-go-mainstream>
- Image7.** Digital tampon, free vector from freepik,Link: <https://www.freepik.com/free-photos-vectors/woman>">Woman photo created by freepik - [www.freepik.com](http://www.freepik.com)</a>
- Image9.** Beltless adhesive Pads advertisement by Stayfree,Link: <https://www.ebay.com/itm/1974-Stayfree-Beltless-Feminine-Napkins-Maxi-Pads-Vintage-Print-Ad-Page-/362813343199>
- Image10.** Advertisement poster for the Tassaway cup in The Los Angeles Times from 1971 by Kelly O'Donnell, Link: <https://psmag.com/news/why-has-it-taken-the-menstrual-cup-so-long-to-go-mainstream>
- Image11.** Commercial disposable sanitary pad, free vector from freepik.com, Link: <https://www.freepik.com/free-photos-vectors/banner>">Banner vector created by vectorpouch - [www.freepik.com](http://www.freepik.com)</a>
- Image12.** The keeper cup from The Keeper Inc., Link: <https://keeper.com>
- Image13.** Rely Tampon box from Vintage Rely Tampon Ads, Link: <https://ahistoryofbaddates.wordpress.com/2016/04/14/vintage-rely-tampon-ads/>
- Image14.** Glad Rags pads from Glad rags website, Link <https://gladrags.com>
- Image15.** Period Panties by Thinx, Link: <https://www.shethinx.com>
- Image16.** Woman wearing Dear Kate's Go Commando active wear leggings, Link: <https://www.dearkates.com/collections/activewear>
- Image17.** Softdisc by The Flex Company, Link: <https://flexfits.com>
- Image18.** Reusable tampon applicator by Dame, Link: <https://wearerdame.co>
- Image19.** Gender neutral menstrual cup- <https://ultucup.com>

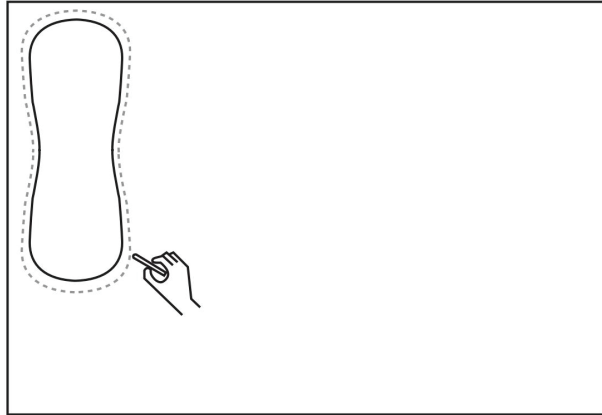
### c. Citations for timeline of menstrual products on page 6-9;

- Spinks, R. (2018, March 17). Why do American women prefer applicator tampons, while the rest of the world's women don't? Retrieved from <https://qz.com/quartz/1224531/why-american-women-use-applicator-tampons-and-european-women-dont/>

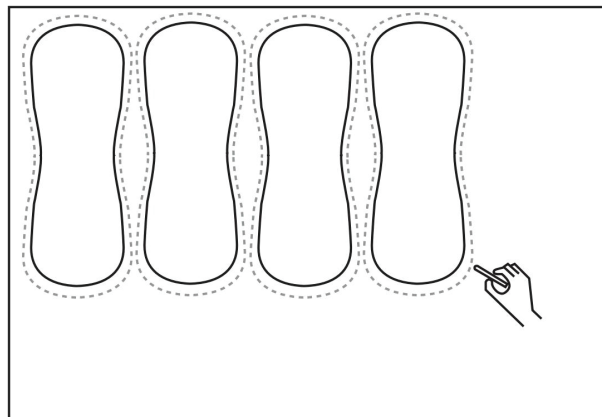
## Appendix C: Workshop Instruction brochure

### Step 1: MAKING OF CORE

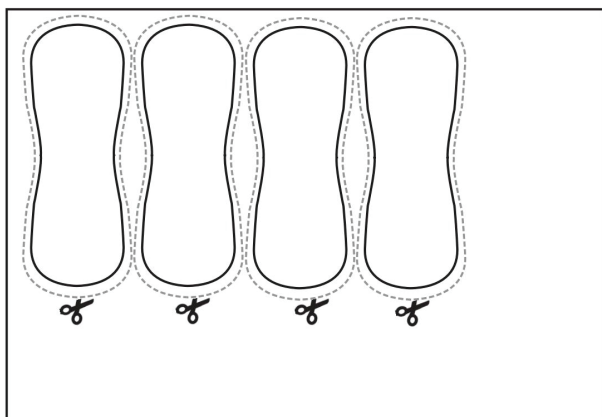
1. Take suitable core fabric (jersey, terry or cotton flannel) and trace the cardboard core pattern onto the fabric using a ballpoint pen, pencil or chalk.



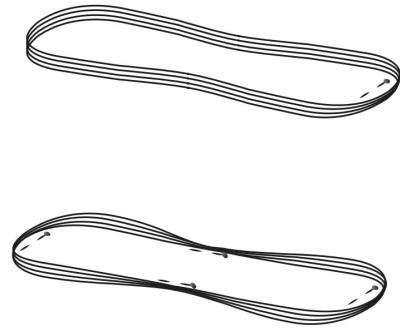
2. Depending on number of layers required for making the core, trace multiple patterns minimizing the wastage of fabric. For regular flow, 4 - 6 layers of flannel/jersey or one layer of terry can be used. For heavy flow, 6 - 8 layers of flannel/jersey or two layers of terry are suggested..



3. Cut the core layers carefully using scissors.



4. Stack them in desired order and pin with straight pins to keep them in place.

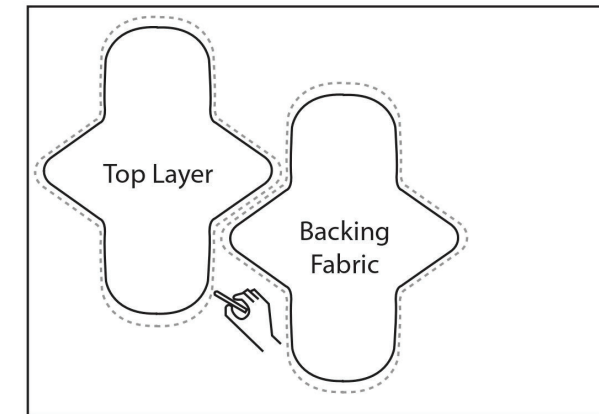


5. Stitch by hand or sew along the border of the cut fabric.

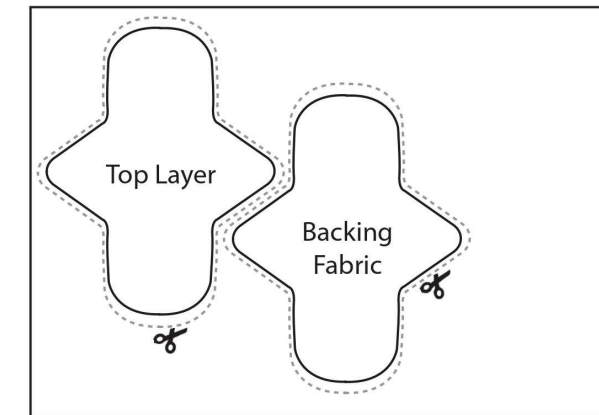


### Step 2: MAKING OUTER LAYER

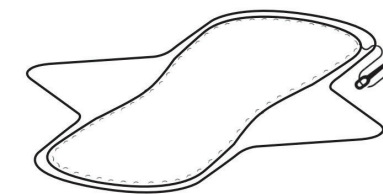
1. Trace the outer lining of the pad with additional seam allowance.



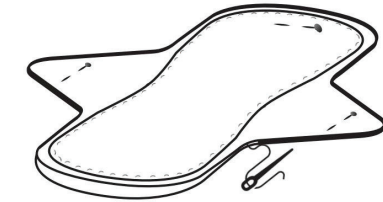
2. Cut the backing fabric and top layer.



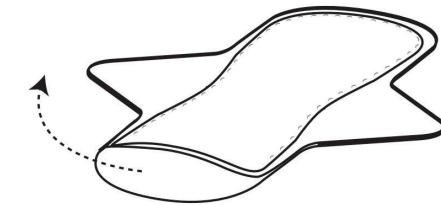
3. Stitch the core onto the top fabric.



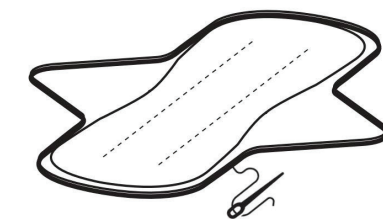
4. Stitch the top and bottom fabric together along the border leaving a small gap to turn the pad inside out.



5. Turn the fabric inside out through the open gap. Take a pencil and poke it into the pad, tease the edges out, paying extra attention to the corners. Fold the excess fabric at your gap inwards, so that it is concealed within the pad.



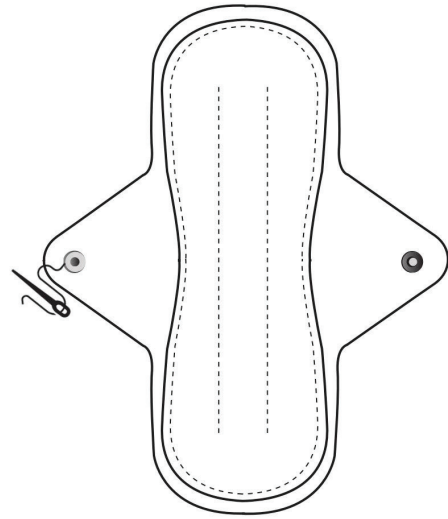
6. Carefully sew the open end. Stitch to straight lines in the center of the cloth pad to keep the core intact.



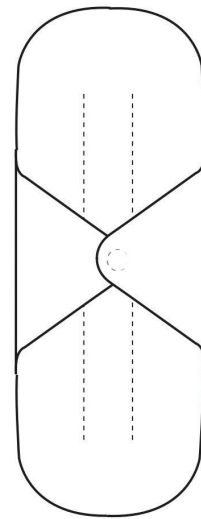


### Step 3: FIXING CLOSURES

1. To secure the pad in place, add sew on snaps to close the pad from bottom. Before applying a closure, figure out how wide you want your pad to be. Make sure your snaps are facing the right way.



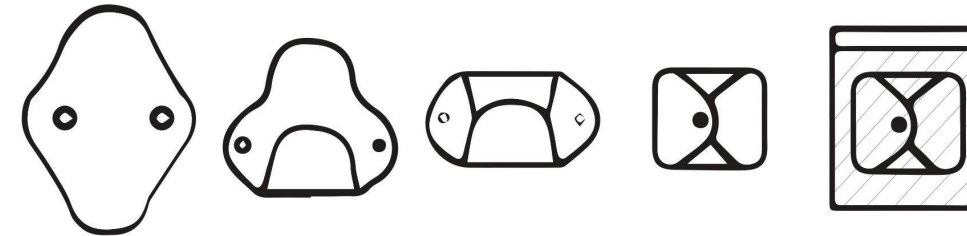
Top Layer



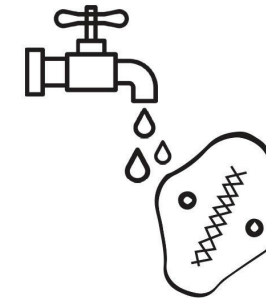
Bottom Layer

### HOW TO WASH CLOTH PADS

1. If you can not wash the used pad immediately, fold it as shown below and store in a waterproof pouch.



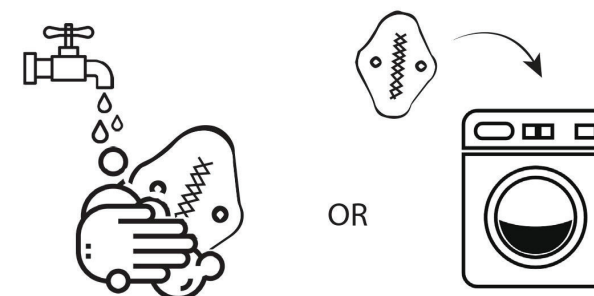
2. Lightly wash under running water and rinse out discharge as much as possible.



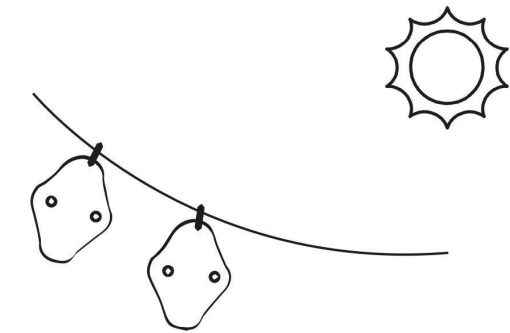
3. Let it soak in cold water for sometime. Do not soak for more than 24 hours.



4. Add washing detergent/soap on the soiled area of the pad and gently rub until it lathers or wash it in a washing machine.



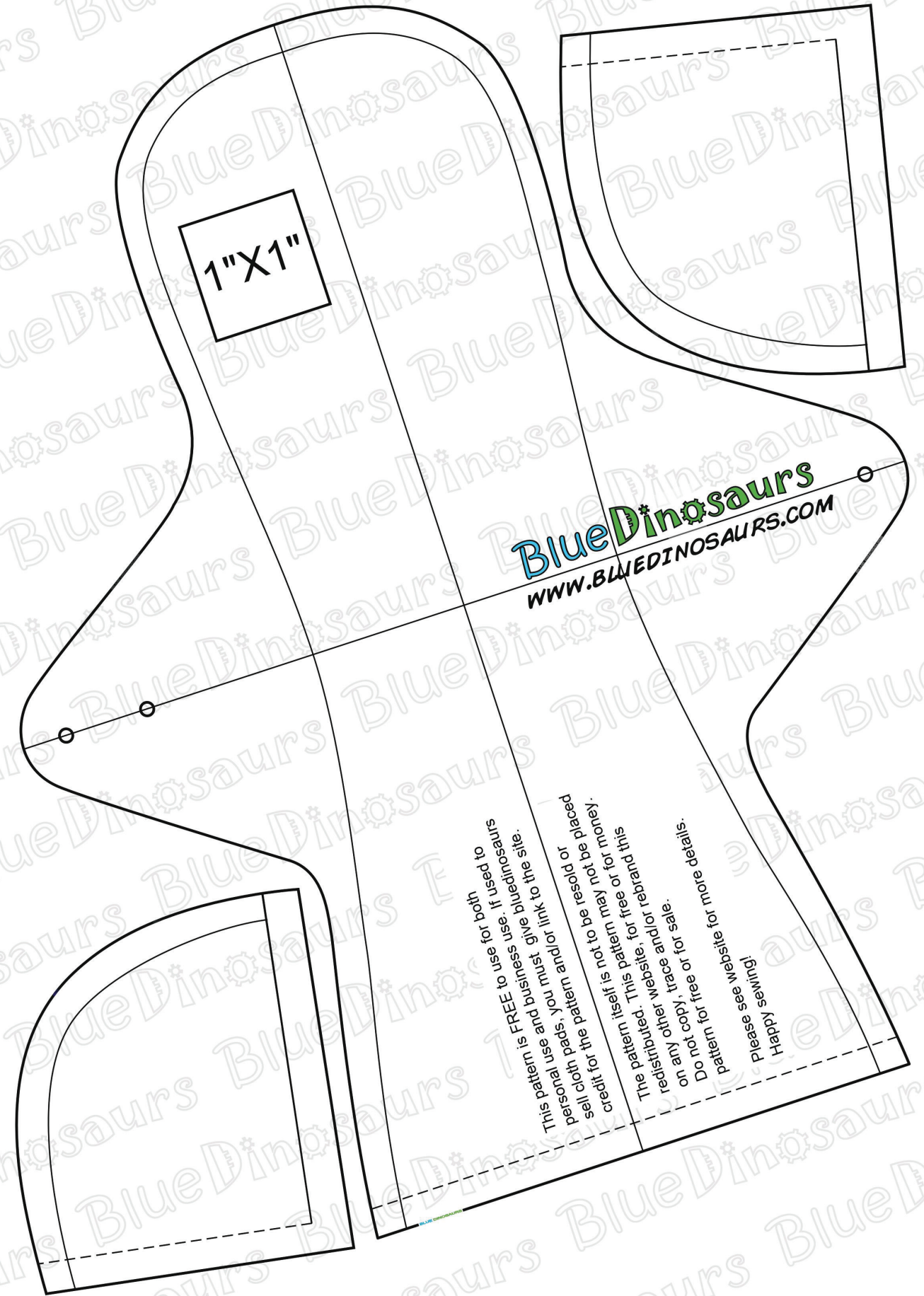
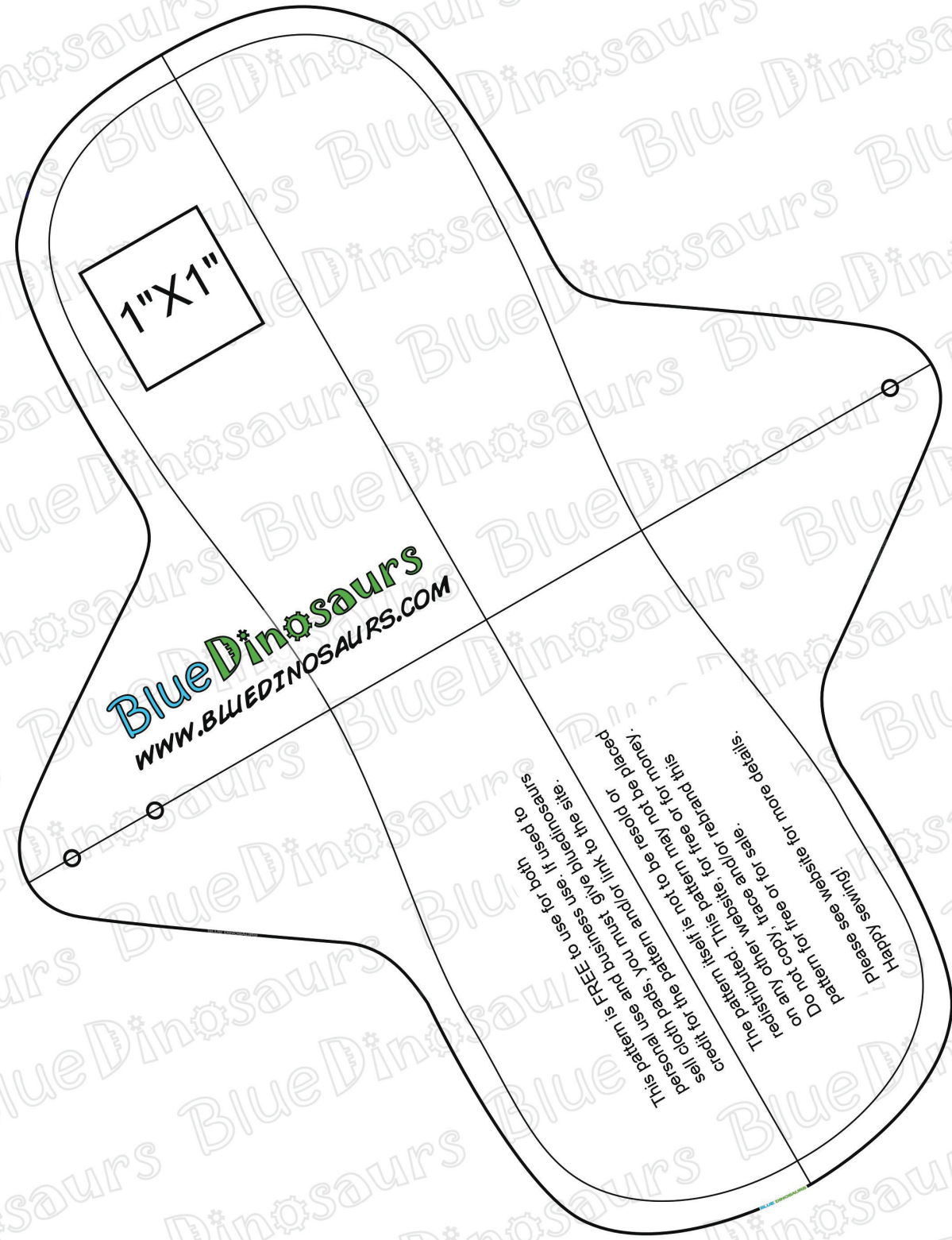
5. Allow it to dry in direct sunlight to disinfect completely.



### ADDITIONAL INSTRUCTIONS

- Do not use bleach, tumble dry, wring/twist, iron or dry clean
- Wash/soak used pads as soon as possible.
- Wash pads before first use.
- Keep away from fabric softeners or whiteners as they can inhibit the absorbency
- Avoid Vinegar as it can also break down fibres and shorten your pad's lifespan.
- Fully dry pads before storing.
- Boiling pads not recommended.
- Personal use only. Do not share pads with others.
- Do not wash used pads at public facilities. If outside, fold used pad, put in an appropriate bag and wash at home.







## Appendix E: Pre and post workshop survey questionnaire

### PRE WORKSHOP SURVEY

1. What menstrual products do you use?
  - Disposable sanitary napkins
  - Reusable cloth pads
  - Old cloth
  - Menstrual cups
  - Tampons
  - Other: \_\_\_\_\_
2. Since when have you used that product?
  - <2 years
  - 2-5 years
  - 5-10 years
  - 10 or more years
3. What are the challenges you have faced during the use of the product?  
\_\_\_\_\_
4. Are you aware of different types of menstrual products available in the market?
  - Yes
  - No
5. Rank the following menstrual products on how safe are they in terms of preventing infections during menstruation?
  - Disposable sanitary napkins \_\_\_\_
  - Reusable cloth pads \_\_\_\_
  - Old cloth \_\_\_\_
  - Menstrual cups \_\_\_\_
  - Tampons \_\_\_\_
6. Which of the following menstrual products are not damaging to the natural environment after their use?
  - Disposable sanitary napkins
  - Reusable cloth pads
  - Old cloth
  - Menstrual cups
  - Tampons
7. How/Where do you dispose of your menstrual waste?
  - Municipal garbage bin
  - Open area nearby
  - Flush down the toilet
  - Bury in the ground
  - Burn with other garbage
  - Others ; Please specify \_\_\_\_\_
8. On a scale of 1 to 5, how physically and mentally taxing it is to dispose of menstrual waste, or wash/dry used menstrual cloth?

1    2    3    4    5

9. Do you want to reduce the amount of your current expenses on menstrual products?
  - Yes
  - No
10. Rate the following options in terms of priority while choosing menstrual products.
  - Saving Money \_\_\_\_
  - Saving environment \_\_\_\_
  - Ease of use \_\_\_\_

### POST WORKSHOP SURVEY

1. What menstrual products would you like to try?
  - Disposable sanitary napkins
  - Reusable cloth pads
  - Old cloth
  - Menstrual cups
  - Tampons
2. What are the challenges you anticipate in using the product?  
\_\_\_\_\_
3. Did you find the the workshop informative and helpful?
  - Yes
  - No
4. Now that you know how you can make your own pads, do you feel more confident?
  - Yes
  - No
5. Would you like to recycle your old cloths to make cloth pads?
  - Yes
  - No
6. Would you make/use cloth pads?
  - Yes
  - No ; Why? \_\_\_\_\_
7. Rate the workshop out of 5 on the following areas
  - Learning \_\_\_\_\_
  - Interactive \_\_\_\_\_
  - Informative \_\_\_\_\_

## Appendix F: Survey questionnaire for doctors

1. What menstrual products do you use?
- Disposable sanitary napkins
  - Reusable cloth pads
  - Old cloth
  - Menstrual cups
  - Tampons
  - Others ; \_\_\_\_\_
- Explain why \_\_\_\_\_
2. Have you ever used cloth pads ?
- Yes
  - No
3. If you ever used cloth pads and discontinued using them, what were the reasons? \_\_\_\_\_
- \_\_\_\_\_
4. What are the challenges you've seen patients face during the use of cloth pads?
- \_\_\_\_\_
5. Do you think cloth pads are safe in terms of preventing infections during menstruation?
- Yes
  - No
6. Have you ever had a discussion about menstrual products and their alternatives with your patients?
- Yes
  - No
- Explain why \_\_\_\_\_
7. What menstrual products do you recommend to your patients?
- Disposable sanitary napkins
  - Reusable cloth pads
  - Old cloth
  - Menstrual cups
  - ampons
  - Others ; \_\_\_\_\_
- Explain why \_\_\_\_\_
8. Is disposal/waste management a factor when advising about menstrual products?
- Yes
  - No
9. Do you think the current waste management system is equipped to process menstrual waste?
- Yes
  - No

10. On a scale of 1 to 5 (5 being the safest), rate the following products on how safe are they in terms of prevention of infections during menstruation?
- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| <input type="radio"/> Disposable sanitary napkins | 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> Reusable cloth pads         | 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> Old cloth                   | 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> Menstrual cups              | 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> Tampons                     | 1 | 2 | 3 | 4 | 5 |
11. On a scale of 1 to 5 (5 being the most toxic), how harmful are the following products for the environment after use?
- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| <input type="radio"/> Disposable sanitary napkins | 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> Reusable cloth pads         | 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> Old cloth                   | 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> Menstrual cups              | 1 | 2 | 3 | 4 | 5 |
| <input type="radio"/> Tampons                     | 1 | 2 | 3 | 4 | 5 |



## Appendix G: Survey for teachers

1. What menstrual products do you use?
  - o Disposable sanitary napkins
  - o Reusable cloth pads
  - o Old cloth
  - o Menstrual cups
  - o Tampons
  - o Others ; \_\_\_\_\_  
Explain why \_\_\_\_\_
2. Do you think cloth pads are safe in terms of preventing infections during menstruation?
  - o Yes
  - o No
3. Have you ever had a discussion about menstrual products and their alternatives with your students?
  - o Yes
  - o No
  - Explain why \_\_\_\_\_
4. What menstrual products do you recommend to your students?
  - o Disposable sanitary napkins
  - o Reusable cloth pads
  - o Old cloth
  - o Menstrual cups
  - o ampons
  - o Others ; \_\_\_\_\_  
Explain why: \_\_\_\_\_
5. Is disposal/waste management a factor when advising menstrual products?
  - o Yes
  - o No
6. What are the challenges you have seen students face during the use of cloth pads?  
\_\_\_\_\_
7. On a scale of 1 to 5 (5 being the safest), rate the following products on how safe are they in terms of prevention of infections during menstruation?

o Disposable sanitary napkins	1	2	3	4	5
o Reusable cloth pads	1	2	3	4	5
o Old cloth	1	2	3	4	5
o Menstrual cups	1	2	3	4	5
o Tampons	1	2	3	4	5
8. On a scale of 1 to 5 (5 being the most toxic), how harmful are the following products for the environment after use?

o Disposable sanitary napkins	1	2	3	4	5
o Reusable cloth pads	1	2	3	4	5
o Old cloth	1	2	3	4	5
o Menstrual cups	1	2	3	4	5
o ampons	1	2	3	4	5
9. Do you think the current waste management system is equipped to process menstrual waste?
  - o Yes
  - o No

## Appendix H: Template for semi structure interviews

### INTRODUCTION

1. Can you tell me something about your education and work experience?
2. What made you feel the need to start this organization?
3. Who is your target audience?
4. What were the initial challenges you observed when you started the organization?
5. Did you get any government support in setting it up?

### PROCESS

6. Who are the major stakeholders in the process and define their role?
7. It is not easy for women from lower-income groups or rural areas to make decisions without permission from their families. How did you convince them, or other members of their families to let them work to make cloth pads?
8. What changes have you observed (direct or indirect) in the lives of women involved in making and using cloth pads?
9. Are men involved in the process? If yes, what is their role? If no, why not?
10. In your experience, what are the various taboos related to cloth pads?
11. How can we de-stigmatize the process of menstruation in India?
12. How do you ensure safe hygiene practices after the distribution or sale of cloth pads?
13. What are the most critical after-sale problems that need to be addressed?

### ADOPTION AND EXPANSION

14. What are the challenges in the adoption of cloth pads?
15. How do you think the cost of owning cloth pads is affecting its adoption and expansion?
16. What is the scale of expansion you imagine for your organization?
17. What are the challenges in expansion currently?
18. Initiatives like the construction of toilets, menstrual day awareness campaign are helping create awareness. What do you think are the gaps in the system, and how can they be addressed?

### STAKEHOLDER ANALYSIS

19. What is the role of the media? (As media advertisements are directed towards plastic sanitary pads only)
20. What is the role of organizations that are in the business of producing sanitary pads on a large scale?
21. What is the reason that large consumer goods' companies are not producing cloth pads?
22. Menstrual waste is neither considered under Solid waste, nor is it regarded as sanitary waste in India. Waste disposal workers have to segregate the soiled pads manually without proper protective gear. What are your views on the current waste management system? What are the steps taken towards menstrual waste reduction?
23. What is the relationship between public policy and menstrual care? In your view, which initiatives have been most successful?
24. What is the kind of feedback that you are hearing from cloth pad users/adopters?
25. What is the role of primary health caregivers/ Doctors in terms of guiding women through the menstrual process?

