



YVW Naarm Innovators

WaterAid Winnovators - Hygiene and Sanitation Challenge

What is the issue?

India's rural locations are affected by adverse health and environmental issues due to a lack of sustainable disposal mechanisms for sanitary products. Our team has been working towards developing a discrete and sustainable solution for women from the Paudi Bhuyan community in India. Our solution will enable these women to effectively manage their sanitary waste while also inculcating best practices for menstrual health management (MHM).

"Design a **safe, dignified** and **sustainable** sanitary napkin disposal system that helps women **privately dispose** of products **hassle-free** in the **household**"

What's our solution?

Owing to the current infrastructural and cultural inhibitors for reusable alternatives, we are proposing to introduce single-use compostable pads as an interim solution to phase out current non-compostable pads and ultimately transition to majority reusable pads. The introduction of single-use compostable pads as a 'bridge' to go from non-compostable pads to reusable sanitary products will allow us to efficiently manage the cultural and socio-economic changes associated with this transition by simultaneously implementing a safe and sustainable sanitary waste management system.

Besides meeting the objectives of the brief, our solution also offers these three key advantages.

1. It is adaptable

- Compostable and reusable pad options enable women to choose which product is right for them considering; ease of use, safety, access to clean water, ability to dry, affordability and phase of menstrual cycle.
- Providing choices ensures our solution is dynamic and dignified.




2. It is empowering

- Our enhanced 'whole of community' education program has a long-term objective to empower women through menstrual and MHM knowledge.

- Long-term objectives for micro-scale community production of sanitary pads, composting knowledge and a self-serving education program empowers the Paudi Bhuyan community.

3. It builds upon existing programs and resources

- We don't aim to 'reinvent the wheel'.
- Disposable pad alternatives already exist that are technologically advanced, sustainable, and hygienic – we aim to partner, and capacity build the production and availability of these products in the long-term.
- Our solution cooperates and aligns with existing programs and infrastructure improvements including the *Swachh Bharat Mission* delivering WASH infrastructure.

	Disposable Pads	Compostable Pads	Reusable Cloth Pads
			
Material	Plastic	Bamboo or Banana Fibre, PUL	Cloth, Banana Fibre and PUL
Cost	AUD\$23 pp/year	AUD\$88 pp/year	AUD\$9 pp/year
Disposal	Landfill Pit Decentralised	Compost (Household or Community)	Compost (Household or Community)
New practice?	No – current practice	Yes – disposal	Yes – washing for reuse, disposal
Can be locally produced?	No	No	Yes - future scope
Sustainable	No	Yes	Yes
Hygienic?	Yes	Yes	Yes – when washed correctly

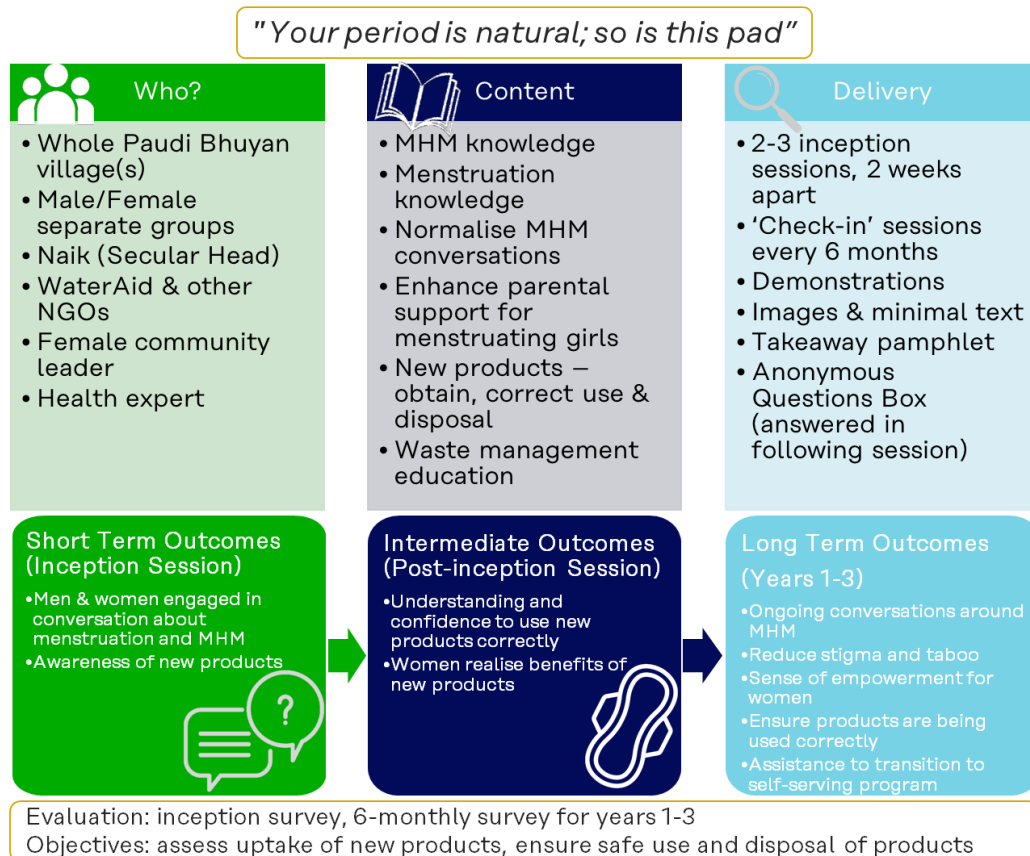
Legend: green – satisfactory or positive outcome, yellow – disadvantage / risk that has been mitigated with proposed solution, red – disadvantage / risk

How will we implement?

Our 'whole of community' education program will build on the program already provided by WaterAid India and be key to successfully implementing our solution. This education program will improve women's understanding of how to use and dispose of these new sanitary products in more hygienic, discrete, and sustainable ways. It will also facilitate changing community attitudes towards menstruation through engaging

women and men in conversations about menstruation and MHM. This will have the long-term outcome of reducing stigma and taboo, providing women with a sense of empowerment, and assisting the Paudi Bhuyan community to transition to a self-serving education program, that they're proud of.

We have considered how this education program will be delivered; covering who should attend, how this content will be delivered and overarching outcomes for each stage of delivery, that aligns with our implementation timeline. The Paudi Bhuyan community will be surveyed after inception sessions and at 6-monthly intervals to determine the success of the program and feasibility to implement it elsewhere.



A key objective of the program is to transition women towards hygienically washing reusable pads. Women will be provided with a MHM pack which includes a carry bag, reusable pad kit, a plastic 'wet bag' and mesh bag (for drying).

In the long term reusable pads will enable a far more sustainable menstrual health management model, where women could obtain or make reusable cloth / bamboo / banana fibre pads. This option is sustainable, removes the need for public disposal, is affordable, and with the 'wet bag', enables women to store used pads until they return home.

In the short term; the barrier of stigma, lack of awareness and limited infrastructure to wash reusable pads means compostable pads can be distributed to women who feel uncomfortable or don't have the means or knowledge to hygienically reuse these products. For these women, discrete disposal options include composting at home, burying, disposal in a compostable latrine or in a community compost pit that will be managed by local women hired by WaterAid as Program Leaders. This creates a

compost by-product which could be used in the community, but importantly gives women the flexibility to dispose of their used pads safely. Even under current practice, a compostable pad disposed of in landfill will still biodegrade, mitigating concerns of environmental pollution.

How much will this cost?

The assumptions around our financial estimates are discussed and outlined in detailed tables in the Appendix. The estimated cost to be borne by WaterAid over 3 years is \$177,920. This includes the purchase of compostable and reusable pads at retail price, as well as the cost of hiring two local Program Leaders. We are also assuming that we are using the more affordable of the reusable pads and that uptake will increase by 20% each year of the program, starting with 20% uptake after inception sessions.

Not factored into this cost include things like shipping and storage of pads once bought from suppliers or other items that were challenging to quantify such as how much it will cost to build and maintain community level compost systems.

	Stage 1 & 2	Stage 3	Ongoing
Product	<ul style="list-style-type: none"> Introduce Compostable Pads Phase out Disposable Pads 	<ul style="list-style-type: none"> Introduce Reusable Pads Continue Compostable Pads 	<ul style="list-style-type: none"> Reusable Pads (aspire local manufacture) Compostable Pads
Disposal	<ul style="list-style-type: none"> Compost (household & community) Landfill (phase out) 	<ul style="list-style-type: none"> Household Compost Community Compost 	<ul style="list-style-type: none"> Household Compost Community Compost
Education	<ul style="list-style-type: none"> New Product Use Normalise MHM conversations 	<ul style="list-style-type: none"> New Product Use and Care Continue MHM conversations 	<ul style="list-style-type: none"> MHM conversations Reduce stigma and taboo
Estimated Investment	<div>\$77,000 in Year 1</div> <div>\$60,000 in Year 2</div> <div>\$42,000 in Year 3</div>		<ul style="list-style-type: none"> Reducing WaterAid Investment Enhancing Self reliance
In Progress (outside proposed solution scope) Increase/Improvement of infrastructure (e.g. water, toilets) is assumed over time that will assist in facilitation of the solution			

Final Remarks

Our proposed solution ensures women have access to products that are safe in the immediate and long-term. We believe that our education program will further assist in ensuring the safe use of products and break down barriers of stigmatisation, thereby empowering women whilst also enabling discrete disposal. Both the immediate and long-term products proposed are environmentally sustainable and we hope with the local manufacture of reusable pads, it will also be financially and socially sustainable.

We envisage the proposed solution can be adopted for similar rural communities, within Odisha State and beyond as it is an adaptable solution that is sustainable in all aspects.

Appendices

Team Defined Objectives

1. Positive human health outcome
2. Low environmental impact / sustainability
3. Effective education awareness program
4. Feasibility of implementation by WaterAid
5. Low cost of implementation
6. Discrete disposal mechanism
7. Reduce menstrual stigma and consider cultural sensitivity
8. Enhance community liveability
9. Align with current Odisha State policies (i.e., Solid Waste Policy)

Proposed Solution

Day-to-day usability/disposal mechanism

With the introduction of compostable disposal pads comes the opportunity to allow for multiple disposal mechanisms which best suits a woman's needs, comfort level and the available infrastructure. The intent of the solution is that the education program and pad allocation to women will create the opportunity for individualised advice for each woman to receive a pad she is comfortable and safe using, and equally comfortable in either cleaning for reuse or disposing in an appropriate manner.

In this way, the proposed solution to the challenge of a safe, dignified and sustainable disposal mechanism of menstrual sanitary products reflects the fact that there is no one solution to the challenge that suits all women-instead the solution provides scope for women to discover the most comfortable and safe means to manage their period, and select the option which best addresses the infrastructure available to them and the personal values they most care about, with better understanding of how to manage their period safely.

The different disposal mechanisms for the compostable pads meet the objectives of the projects to different extents, but by addressing the nature of the product itself there are contingencies so even in the worst-case scenario of uptake and pad disposal, menstrual health management will be improved.

Community Compost

The establishment community compost bins will allow for an easy drop off point, better management of value adding compost and minimal deviation from current practice. This is less discrete than other alternatives but is a central means of disposal. It is expected that the program managers will play a hand in ensuring the compost is used appropriately, adding other suitable compost materials such as green waste, and supporting women to use the compost. This option presents the opportunity for value adding to the community, with the understanding it cannot be used on unprocessed food crops.

Safe		Sustainable		Dignified	
Use	Yes	Environmental	Yes	Discrete	No
Disposal	Yes	Socially	Maybe	Culturally sensitive	Maybe
Collection	Yes	Financially	Yes	'modern' best approach	Yes

Home Compost

Women can put their used pads in home compost, if they have it. This is a far more discrete option, however many women are unlikely to compost at a household level and those who do may be inadvertently adding restrictions on what the compost can be used for, since blood is a biohazard so the compost could not be used on food crops, for instance.

Safe		Sustainable		Dignified	
Use	Yes	Environmental	Maybe	Discrete	Yes
Disposal	Yes	Socially	Yes	Culturally sensitive	Maybe
Collection	Maybe	Financially	Maybe	'modern' best approach	Yes

Self-burial

If women are uncomfortable using the public pit or establishing a home compost, they can simply bury the pad in a suitably discrete location. While perhaps the most discrete, this option limits the rate and effectiveness of biodegradation of compostable pads.

Safe		Sustainable		Dignified	
Use	Yes	Environmental	Maybe	Discrete	Yes
Disposal	Maybe	Socially	Yes	Culturally sensitive	Yes
Collection	Yes	Financially	Yes	'modern' best approach	No

Toilet pit/Latrine

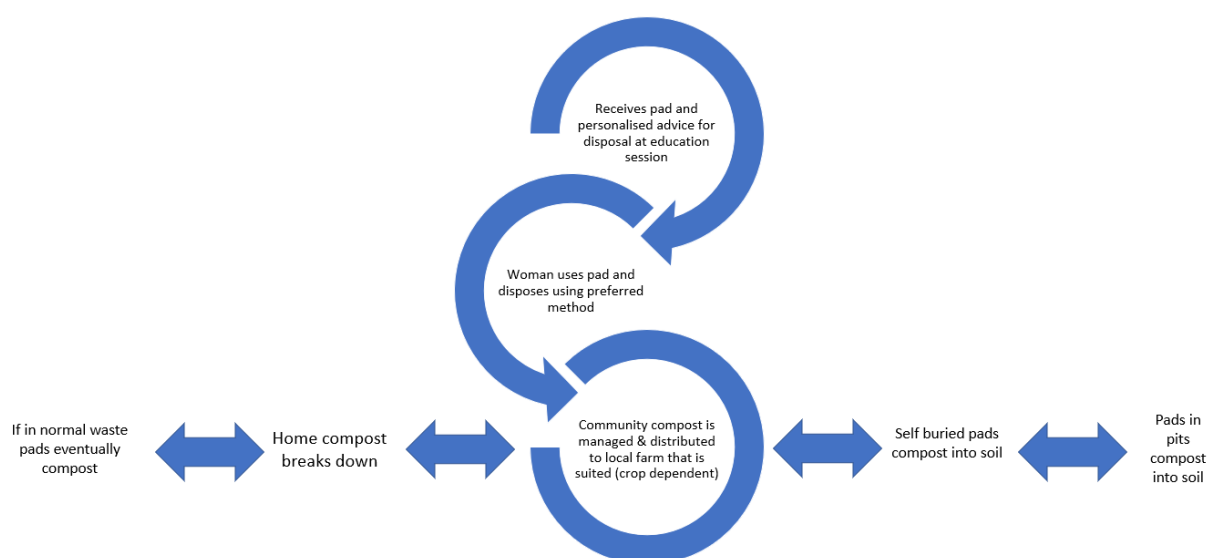
Women can change discretely dispose of their used compostable pad in a compostable latrine, if present in their community. This adds to the adaptability of the solution, as it can be altered in response to changing infrastructure in alignment with other NGC or Odisha State programs; namely the *Swachh Bharat Mission*.

Safe		Sustainable		Dignified	
Use	Yes	Environmental	Yes	Discrete	Yes
Disposal	Yes	Socially	Yes	Culturally sensitive	Yes
Collection	Yes	Financially	Maybe	'modern' best approach	Maybe

Landfill Waste

As a worst-case scenario pads will still biodegrade in landfill waste pits, or elsewhere in the environment. This disposal mechanism is likely to persist, despite discouragement through the education program. Disposal in landfill is less likely to address the public stigma around menstruation or public acceptance of sanitary pads.

Safe		Sustainable		Dignified	
Use	Yes	Environmental	Maybe	Discrete	No
Disposal	Yes	Socially	No	Culturally sensitive	Maybe
Collection	No	Financially	Yes	'modern' best approach	No



Implementation Timeline

1. Phasing out of non-biodegradable disposable sanitary pads:

- These pads are still available to women in the community
- Must address disposal of these pads prior to availability of compostable pads

2. Establish ongoing Education Program and distribution of compostable and reusable pads:

- Upskill community on menstrual health awareness and menstrual health products
- Work individually to identify product and disposal which best suits the individuals needs, values and available infrastructure
- Sourcing of externally purchased compostable pads – made available by WaterAid
- Distribution of new products:
 - WaterAid employees to bring sufficient supply of reusable and compostable pads to the community every 3 months – local Program Leaders to coordinate distribution to all women
 - This distribution can coincide with 6-monthly ‘check-in’ education sessions provided by WaterAid
 - It is important to consider the potential limitations of access to Paudi Bhuyan communities during the monsoon months (July-September). This may impact the volume of pads that should be distributed to the community prior to monsoon to ensure women have sufficient supply if WaterAid cannot access for more than 3 months.

3. Introducing and transitioning to reusable sanitary pads:

- MHM reusable pad packs – to include pad pack (Eco Femme or Saukhyam), ‘wet bag’, carry bag and mesh bag (for drying)
- May require refreshing Paudi Bhuyan community on the proper use and hygienic cleaning of reusable pads through ‘Check-in’ education program, prior to distribution

4. Future objectives: micro-economic program

- WaterAid to assist Paudi Bhuyan community to set up reusable pad production facility
- Provide externally sourced material (i.e. bamboo, cloth, banana fibre) initially if these products are not already available to the community
- Encourage local planting of banana, bamboo, cotton etc in local region for locally sourced material
- The timing and/or suitability of local production will be influenced by the services available to the region (i.e. electricity, water, road infrastructure improvements and access)
- Objective is for WaterAid’s involvement to decrease overtime – empower the community to become ‘self-sufficient’

Education Program

WaterAid India along with other Non-governmental Organisations (NGOs) and cross-sectoral ministries at the federal and state level have implemented several successful Menstrual Health Management programs to date.

Our team propose to enhance these educational programs for Paudi Bhuyan people by establishing ‘whole of community’ education. This ‘whole of community’ program will serve to increase the social support, knowledge and skills, facilities and services

and materials pillars of an effective MHM program; as identified by UNICEF in their report, *Guidance on menstrual health and hygiene 2019*.

Why 'Whole of Community'?

WaterAid India have successfully implemented education programs for school aged girls. However, literature suggests that access to and knowledge of MHM among women outside of school is often limited. Providing a 'whole of community' MHM education program will enhance these women's access knowledge and skills, social support and capabilities to support their daughters from menarche.

Outside of school MHM education programs, mothers are important sources of support for adolescent girls. A recent study conducted by UNFPA and WaterAid (2021) found that 94% of adolescent girls are comfortable speaking to their mothers about menstruation and less inclined to approach frontline workers (13%) or their teachers (10%). This highlights that, mothers need to have the right information and resources to properly educate their daughters on MHM.

To end menstrual stigma and discrimination reported in Paudi Bhuyan communities, men also need to be educated on menstruation and MHM. Other states in India have made menstrual hygiene (MH) a mandatory part of school curricular for both boys and girls. It is assumed this will also occur in Odisha State. However, educating men outside of school is equally as important. In general, men hold positions of authority within the Paudi Bhuyan tribal council groups and have a high level of influence within their village. This includes the Naik (Secular Head) of the Paudi Bhuyan people. A 'whole of community' education program will help men to be supportive and understanding of women's needs while they are menstruating.

Importantly, the 'whole of community' education program also aims to ensure the proper use and disposal of menstrual products that are new to the community. It is vital that women use these new products correctly way to achieve the objectives of our solution.

Content of Education Program

Our chosen slogan for the Education Program for Paudi Bhuyan women is '*Your period is natural; so is this pad*'. This slogan emphasis the natural process of menstruation, helping to break stigma as well as highlighting that both compostable pads and reusable pads are free from unnatural pollutants that may be harmful to human and environmental health.

We have identified short, intermediate, and long-term outcomes for the 'whole of community' education program.

Short Term Outcomes (Inception Session):

- Men & women are engaged in conversations about menstruation and MHM
- Women have an awareness of the new MHM products available through WaterAid which include compostable and reusable pads.

Intermediate Term Outcomes (Post-inception Sessions):

- Women are understanding of how to use these new products from obtaining, use and disposal
- Women are confident to use new products correctly (e.g. hygienically)
- Women realise benefits of new products

Long Term Outcomes (Years 1-3):

- Ongoing conversations around MHM
- Reduce stigma and taboo of menstruation and MHM
- Sense of empowerment for women
- Ensure products are being used correctly
- Increase parental support for menstruating girls
- WaterAid to provide assistance and guidance to Paudi Bhuyan community to transition to a self-serving program (i.e. local experts)

Compostable Pads

- Display all recognised products:
 - Suvidha pad
 - Saathi pad
 - Etc.
- How to use compostable pads:
 - Stick the pad in your underwear using the sticky strip on the back.
 - Change your pad every few hours, or when it's soaked with blood.
 - Wrap used pads in the wrapper or toilet paper and dispose of them appropriately.
 - Do not wash and reuse these compostable pads. They are not designed to be reused. Harmful health effects may result if they are reused.
- How and where to appropriately dispose of compostable pad:
 - Community compost bin.
 - Household compost.
 - Self-burial - bury the pad in a suitably discrete location.
 - Composting latrine – must ensure this is a composting septic system as discarding used sanitary pads could block small diameter pipes.
 - For long-term keeping in the household the pad can be stored with lime powder, ash, sawdust, or some other benign absorbent
 - There is the option to store this pad in a sealed 'wet bag' (provided as part of WaterAid program) if you don't have access to a suitable disposal point after changing to a new pad.

Reusable Pads

- Display recognised products:
 - Saukhyam reusable menstrual pads
 - Eco femme menstrual cloth pads
- How to use reusable pads:
 - Place the pad in your underwear, with the button clipped on the bottom, outside your underwear.
 - Wear insert with base – ideal for first couple of days for heavy flow
 - Wear base only – ideal for ending days of the period when flow is lighter

- Change your pad every few hours, or when it's soaked with blood.
- Proper sanitary cleaning is available in Saukhyam guidelines below:
 - <https://www.saukhyampads.org/wash-n-wear>
- How to clean reusable pads:
 - 1. Soak soiled reusable pads in cold water for about 5 minutes; do not use hot water as this will set the stains in
 - 2. Squeeze the soaked reusable sanitary napkin gently and discard water in a safe location (i.e., away from food crops).
 - 3. Apply some washing soap and rub gently. Do not scrub/brush as this will damage the pads. Rinse with cold water.
 - 4. Sun dry your reusable pads by hanging them on a clothesline. Do not use the pad if it is still wet.
- Tips:
 - It is best to wash your reusable pads right after use whenever possible. The latest should be the next day for best hygienic conditions.
 - If you own enough reusable pads to go through the entire cycle without having to wash and prefer to wash all soiled washable reusable pads all together at the end of the cycle, then we recommend that you at least soak them shortly after use and air dry them to be washed later.
 - You can get the 'wet bag' to store soiled pads until they are ready to be washed. If you are not okay with the idea of folding a used pad and keeping it away for washing later, just hold it under a running tap for a minute or so and squeeze out all the blood. Then fold the wet but nearly clean pad and keep it away for proper washing after returning home.
 - Place washed pad underneath muslin cloth or other lightweight fabric if you wish to discretely dry in the sun.
- How and where to dispose of reusable pads at their end of life:
 - Each reusable pad can last up to 3 years, depending on the care it receives.
 - Dispose of the reusable pad when it loses its absorbency
 - At the end of the pad's lifetime, remove the leak proof layer (poly urethane laminate) and the buttons (if present) from the pad. These shall be discarded in landfill.
 - The remainder of the pad can be discarded in compost.

Waste Management Education

One objective of our solution is for it to be sustainable and encourage women to dispose of sanitary pads in the right places. We acknowledge that the issue of waste disposal in rural India is greater than just the disposal of sanitary pads. However, WaterAid India have the opportunity to highlight and educate the Paudi Bhuyan community of the importance of best-practice waste management in India, using sanitary pads as an example.

We propose approaching providing waste management education in the following way:

- Highlight the harmful effects of discarding disposable pads 'anywhere'. Disposable products contain plastics that thousands of years to breakdown.
- Explain the following with accompanying slides (adapted from Masika, Eco Femme):
 - Most women are not aware of the hidden costs of disposable pad products
 - Initiatives to encourage use of disposable sanitary pads are short sighted as they do not consider the entire 'life-cycle' of these products
 - There are approximately 355 million women in India of reproductive and menstruating age
 - 42.6 million (12%) of these women use disposable sanitary pads. This equated to 7.020 billion disposable pads discarded every year.
 - If every menstruating woman in India used disposable sanitary pads, this would result in 58 billion napkins every year.
 - The amount of plastic in one disposable pad is equivalent to 4 average size plastic bags, meaning 50 'plastic bags' are disposed each month for one woman.
 - A total of 58 billion napkins every year occupy a total of 288 ha of landfill (173 football fields)
 - These disposable pads can leach pollutants and chemicals that may harm human health and the environment
- **How does the health of the environment affect everyday lives of Paudi Bhuyan people? Why should the Paudi Bhuyan people care?**
 - Paudi Bhuyan people largely work in agriculture and small-scale food production. Therefore, they are dependent on the productivity of their natural environment for their livelihood.
 - Pollution and unnatural products, whether it be chemicals like fertilizer, diesel or other petrol fuels, or large waste products (plastics, scrap metal etc.); these products harm agricultural and forest environments.
 - Pollutants can affect natural environments in the following ways. They can reduce productivity and yield from agricultural crops. They can 'leach' into soils and be absorbed by plants that cause human health impacts such as diseases or poisoning when consumed.
 - Pollutants in waterways can kill fish or other aquatic life that ingest these pollutants, or cause human health impacts when consumed
 - Large rubbish can be consumed by livestock such as goats, chickens or cows which cannot be digested and may cause harm or death.
 - Disposable pads that are made from plastic contribute to these negative environmental impacts.

Delivery of Education Program

- Expert presence (i.e., doctor, nurse, public health representative) and a respected female leader from the community
- Opportunity to include 'anecdotal' stories from women in nearby communities that have used and recommend these products and invite these women to one of the sessions.

- Paudi Bhuyan women only session(s):
 - Mothers act as first point of contact for imparting knowledge on menstruation for majority of girls in India – therefore it is essential mothers and daughters are included (MHFW)
 - Across India, 70% of mothers consider menstruation 'dirty', further perpetuating taboos
 - Ensure women feel comfortable to talk - it is better for the initial inception sessions discussing new products and opening up conversation on menstruation and MHM to be female only
- Paudi Bhuyan men only session(s):
 - Whilst the female only sessions are occurring, men can also gather to improve their understanding of menstruation and menstrual health management.
 - Facilitated by male nurse/health care professional with expert understanding of menstruation and MHM
 - Open discussion, questions, anonymous questions, shared experiences
- These inception sessions will be delivered as nominally 2-3 sessions, held 2 weeks apart
- Demonstrations – lots of images and minimal text
 - 66% of Paudi Bhuyan population (study sample population) is illiterate therefore limiting the amount of text in important
 - Demonstrations of how to clean reusable pads is important.
- Takeaway pamphlet – images & minimal text (see example takeaway pamphlet below):
 - Text in multiple language – English, Hindi and native Odia
- Anonymous Questions Box:
 - Invite women to ask questions after the inception sessions to be answered at the following session
 - Question box and/or individuals can approach a facilitator in private and have questions written down
- Handout of MHM pack / products:
 - At the end of the 2-3 inception sessions following 'survey' of women
 - Vital to ensure that women opting to use reusable pads have access to necessary infrastructure and products to clean appropriately (i.e. water, vessel, soap, somewhere discrete to dry etc).



Compostable Menstrual Pads

Your period is natural; so is this pad.

A step-by-step guide to use and dispose of compostable menstrual pads



1

Use compostable pads the same as disposable pads. Change every few hours, or when it's soaked with blood.

Do not wash compostable pads. They are not made to be reused.

2



3

After use, dispose of compostable pads in household compost system. Not compost used on edible plants.



If you do not have access to compost, sprinkle lime powder over used pad and keep in a sealed container.

4



Tips

Remember, disposable pads are made from plastic which does not break down.

Plastic is a pollutant and causes harm to the environment including crops.

Pollutants can enter soils, be absorbed by plants and consumed by livestock.



ENGLISH

WaterAid India (2022)

Sample takeaway pamphlet for compostable pads from Education Program.



How to clean Reusable Menstrual Pads

A step-by-step guide to ensure your reusable pads are clean and long-lasting.



1

Soak soiled cloth pads in cold water for 5 minutes; do not use hot water as this will set stains in.

Squeeze the soaked cloth pad gently and discard water in a safe location.

2



3

Apply some washing soap and rub gently. Rinse with cold water.

Sun dry your cloth pads. This can be done on a clothesline. Do not use if the pad is still wet.

4



Tips

It is best to wash your cloth pads right after use whenever possible.

Do not scrub/brush cloth pads as this will damage them.

Place washed pad underneath muslin cloth or other lightweight fabric if you wish to discretely dry outside



ENGLISH

WaterAid India (2022)

Sample takeaway pamphlet for reusable pads from Education Program.

Survey

In order to assess the success of WaterAid intervention in the Paudi Bhuyan communities, it is recommended to carry out surveys at after the inception sessions, and after regular 'check-in' sessions held thereafter every 6 months. This will enable WaterAid to assess the uptake of these new products and ensure the products are being used and disposed of appropriately. A similar survey approach as used in this study shall be used

(<https://bmcwomenshealth.biomedcentral.com/track/pdf/10.1186/s12905-021-01265-w.pdf>)

Results from this survey can provide further evidence on the success of compostable and reusable compostable pads to convince Odisha State to adopt these products as 'best-practice'.

An example of this survey format with questions and responses is shown below.

Response on the acceptability of reusable pads and compostable pads.

Preference of sanitary products (compostable, reusable, both, other)

Recommend reusable pads to others

Recommend compostable pads to others

Reusable pad - comfort and ease of use and reuse

Compostable pad - comfort and ease of use and reuse

Like to continue using the reusable pad?

Like to continue using the compostable pad?

Reason for preferring reusable pad?

Reason for preferring compostable pad?

Reason for recommending reusable pad?

Reason for recommending reusable pad?

Reusable pad limitations?

Compostable pad limitations?

Response of the participants on the feasibility of the reusable pads and compostable pads.

Reusable pads - Preferred place of usage

Compostable pads - Preferred place of usage

Reusable pads - Experience with leakage

Compostable pads - Experience with leakage

Reusable pad - duration of single pad usage

Compostable pad - duration of single pad usage

Reusable pad - duration of wash

Reusable pad - method of washing

Reusable pad - duration taken to dry pads

Reusable pad - method of drying pads

Compostable pads - typical location of disposal

Main location used for MHM

Paudi Bhuyan Community

Our team understand that WaterAid has a five-year connection to the region of the Paudi Bhuyan communities, promoting and implementing safe drinking water, sanitation, hygiene facilities and MHM education programs.

Odisha State government, under the *Swachh Bharat Mission* aims to end open defecation completely from all its regions. This is being delivered through the construction of village and household level latrines. It is currently unknown whether all Paudi Bhuyan villages have newly installed latrines, nor whether they are predominantly installed at the household or village level. Our assumption is that ultimately, all Paudi Bhuyan women will have access to latrines.

Menstrual Health Management for Paudi Bhuyan

Our teams understanding is that young women who attend school in classes 6th to 12th (11-17 years) are provided with free disposable sanitary pads as part of the government implemented program, *Khushi Sanitary Napkin Scheme 2022*. This program excludes who do not attend school.

Outside of this school level initiative, disposable sanitary pads are typically accessed from markets or Accredited Social Health Activist (ASHA) workers for rural communities. Paudi Bhuyan villages are more than 50 km from daily markets held in Deogarh. There are smaller markets that occur less than 10 km from villages, however these markets are usually weekly. It is quoted that sanitary napkins are provided by ASHA workers at a subsidised rate of ₹1 per napkin. ASHA workers are employed by the Ministry of Health and Family Welfare (MoHFW) as part of India's National Rural Health Mission (NRHM), which began in 2005. The aim of this program is to have an

ASHA worker in every village in India to connect these marginalised communities to the health care system.

Despite recent access to disposable sanitary pads, a recent study from 2022 found that over 40% of rural women in Odisha continue to use clothes or cloth as menstrual absorbents. The reasons for continued use of cloth varies and is impacted by;

- knowledge and awareness on menstruation and MHM,
- knowledge and awareness of products and correct use,
- financial status of the individual or household,
- other sanitation behaviours among community members that could lead to unsanitary conditions of WASH infrastructure, and
- broad sense of privacy, safety and security for women, especially during menstruation.

As highlighted by WaterAid India, access to menstrual products have largely been made available. However, social stigma remains one of the biggest issues facing Paudi Bhuyan communities. Menstruation and menstrual health management are largely taboo subjects in the household and men have little understanding of menstruation. A recent study across all of India found that more than 70% of mothers believe that menstruating is 'dirty'. In many instances, women are effectively excluded from the community and forced to live elsewhere whilst they are menstruating.

Multi-criteria Assessment

To determine the most viable option to the challenge, our team created a Multi-criteria Assessment (MCA). This MCA compared a series of options against a selection criterion that not only used WaterAid's objectives but expanded upon them. To make a fair and comprehensive scoring system, we had discussions amongst ourselves and then weighted each criterion based on what we believed would hold a greater importance on a personal, economic, cultural level and addressed the challenge.

Criterion	Weighting
Environmental Impact/Sustainability	14%
Cost (Product/Intervention)	12%
Enhancing liveability / community	6%
Stigma / Cultural Sensitivity	11%
How discrete? (disposal mechanism)	11%
Human health outcomes	14%
Upskilling	14%
Feasibility (WaterAid implementation)	13%
Alignment with Odisha State Waste Policy	5%

Through the MCA, we were able to determine that compostable pads and reusable pads would be the most suitable option in solving this challenge.

Option	Score
Base Case	0
1A – Disposable plastic pads with biowaste bin-incineration	-0.69
1B – Disposable plastic pads with bioremediation	-0.5
2A – Compostable pads with composting	0.42
2B – Compostable pads with incineration	0
2C – Compostable pads with central disposal	0
3 – Reusable pads	0.19

		Base		Option 1A-Disposabile (biowaste bin-incineration)		Option 1B - Disposable (Bioremediation)		Option 2A - Biodegradable (Compost/Landfill)		Option 2B - Biodegradable (to incineration)		Option 2C - Biodegradable (Central Disposal)		Option 3 - Reusable Pads	
Criterion	Weightin	Score (0-10)	Discuss	Score (0-10)	Discussion of criterion scoring	Score (0-10)	Discussion of criterion scoring	Score (0-10)	Discussion of criterion scoring	Score (0-10)	Discussion of criterion scoring	Score (0-10)	Discussion of criterion scoring	Score (0-10)	Discussion of criterion scoring
Environmental Impact/ Sustainability	14%	0		0	Effectively base case in developed nations. Removes waste from landfill but incineration releases plastic into atmosphere. Depends somewhat on nature of product (ie plastic containing vs natural fibre, what else is mixed in) so scope for improvement	0	Disposable pads Disposal via 'remediation' process which results in compostable byproduct	3	Made from a waste product and is biodegradable. Banana fubre uses less water and fertiliser than cotton. Can they be sourced locally? Saathi pads if used have no plastic. 1	0	Made from a waste product and is biodegradable. Banana fubre uses less water and fertiliser than cotton. Can they be sourced locally? Saathi pads if used have no plastic. 1		Made from a waste product and is biodegradable. Banana fubre uses less water and fertiliser than cotton. Can they be sourced locally? Saathi pads if used have no plastic. 1	3	Usable long term - 1 to 3/5 years Compostable once end of life
Cost (Product / Intervention)	12%	0		-3	Approx 5-12Rs per pad, cheaper than biodegradable, cost of incenarator likely to be high due to either establishment of removal network or high desnity of incinerators required. Also need to fund biowaste buckets for each household, carry bags OPEX Costs are significantly high	-3	High OPEX costs for maintaining 'bioremediation' facility Relatively low cost of input at community / village level (i.e. sanitary waste collection bin) High transportation cost	-1	More expensive (about 20 Rs) than typical pads (5-12 Rs) per pad.		More expensive (about 20 Rs) than typical pads (5-12 Rs). Also requires a biowaste process being implemented.		More expensive (about 20 Rs) than typical pads (5-12 Rs). Also requires a biowaste process being implemented.	-1	Slightly higher costs from disposable products ~Rs. 38 to Rs.300 Cost per wear is comparable to existing disposable pads
Enhancing liveability / community	6%	0		1	Possibly some jobs running incinerator, collecting waste, added benefit of other medical and biowaste collection	1	Disposable pads still in use Address human health issue but not sustainability	1	Removes plastic pads from the community. If sourced locally, could be better community benefit		Removes plastic pads from the community. Benefits for other biowaste.		Removes plastic pads from the community. Benefits for other biowaste. Employment opportunity.	1	Removal of plastic pads. Community production? Delivery to other nearby communities, business opportunity
Stigma / Cultural Sensitivity	11%	0		-3	Concept of burning blood seen as highly taboo.	0	Disposable pads are becoming the new 'norm', incentivised by the Indian Govt. and endorsed by Odisha State	0	There is still stigma associated with periods but pad use is becoming more accepted.		There is still stigma associated with periods but pad use is becoming more accepted. Burning blood is culturally insensitive.		There is still stigma associated with periods but pad use is becoming more accepted. Burning blood is culturally insensitive (especially in a central location)	0	Use is aligned with traditional methods of cloth use. However, stigma around washing & drying exists and women tend to dry indoors or concealed, which can be unhygienic Issue of changing pad during the day - how to retain, will this impact womens ability to go about daily activities freely?
How discrete? (disposal mechanism)	11%	0		1	Household biowaste bin allows for "dilution" of pads among nappies, condoms etc. Personal bags possibly less discrete but better than base case	1	Community collection facility for 'sanitary products' is more discrete than pad only disposal Introduce 'in home' and 'personal disposal bag' as part of solution	0	Discrete with bins in bathrooms. Pads must be moved from individual bags/bins to community waste or compost.		Discrete with bins in bathrooms. Pads must be moved from individual bags/bins to biowaste collection points.		Discrete with bins in bathrooms. Pads must be moved from individual bags/bins to biowaste collection points. Can be incinerated elsewhere.	0	Various styles of products are available. Products that do not look like pads are available for discreet washing / drying
Human health outcomes	14%	0		0	Negligible net benefit-possible increased uptake and loss of ground pollution vs increased risk of localised air pollution, OHS risk of incinerator operation	0	No net benefit compared to 'Base' case	2	Natural fibres have better for health outcomes than plastic. Potential health problems if pads are not being changed regularly enough (Could cost influence this?)		Natural fibres have better for health outcomes than plastic. Potential health problems if pads are not being changed regularly enough (Could cost influence this?)		Natural fibres have better for health outcomes than plastic. Potential health problems if pads are not being changed regularly enough (Could cost influence this?)	0	Study results - after 1 year of use, bacteria/virus load comparable to disposable pad Require educational program to ensure they aren't cleaned inappropriately
Upskilling	14%	0		-1	Pad use aligns with current education practices and uptake. Some education around biowaste for whole community, training and OHS standards for incinerator operators. Scope for increase around pollutant value of waste if program is successful.	-2	High level of eduction required for community Additional education program required to train personnel in 'bio-remediation' process, maintenance and disposal	-1	Pad use aligns with current education programs which could be extended. Education around composting could be required.		Pad use alligns with current education programs which could be extended. Education around biowaste could be required.		Pad use alligns with current education programs which could be extended. Education around new community waste system could be required.	-1	Upskilling to enable community to produce reusable pads
Feasibility (WaterAid implementation)	13%	0		-1	High cost and logistically challenging to deliver incinerator to central area for use at all times, difficult to initially overcome taboo of incinerator when it is "front and centre". However, reasonably easy to implement pad handling components of solution (ie ousehold disposal)	-1	High cost to implement technology required for 'bio-remediation' process, no current examples in use at scale in India and limited pilot processes elsewhere in the world	-1	More expensive than plastic pads which would increase Wateraids costs. Gov already supply pads so would just require an altered procurement process.		More expensive than plastic pads which would increase Wateraids costs. Wateraid already supply pads so would just require an altered procurement process. Implementing biowaste would have a cost. Would it be feasible for the gov ?		More expensive than plastic pads which would increase Wateraids costs. Wateraid already supply pads so would just require an altered procurement process. Implementing new waste facility in the area would require significant planning/resources.	-1	Product available nationally (India) and sister / partner organisation and assistance available
Alignment with Odisha State Waste Policy	5%	0		2	Separation of Sanitary Waste from community organic waste and landfill disposal streams	2	Separation of Sanitary Waste from community organic waste and landfill disposal streams	1	Policy would require a separate biowaste collection and incineration.		Would allign with policy		Would allign with policy	2	Would align with policy
TOTAL	1	0.00			-0.69		-0.50		0.42		0.00		0.00		0.19

Finances

Assumptions;

- Our cost estimates assume the midpoint between the 2000-5000 people in the scope of the challenge.
- 28% of the 3500 people are women between the ages of 11-50 (Table 1)
- Women use 3-day pads and one heavy flow pad over night for 5 days.
- The uptake of reusable pads is 20% in Year 1, 40% in Year 2 and then 60% in Year 3 with the rest being compostable pads.
- Reusable pads last 3 years.
- 2 Program leaders who will engage and educate the community about our program as well as monitor the composting process.
- The compostable pads we are using are Saathi Pads (\$1.6 per woman per day) and the reusable pads are the Saukhyam Pads (\$9 per woman).
- 1 INR = 0.018 AUD.

With these assumptions in mind the overall cost over 3 years is \$177,920.

Age	0-1 Years	1-5 Years	5-15 Years	15-50 Years	Above 50	Total
Male	0.73%	6.68%	7.68%	29.74%	8.22%	53.07%
Female	0.53%	4.81%	7.15%	25.20%	9.22%	46.93%

(Table 1: Age and Gender breakdown as found in <http://hdl.handle.net/10603/282299>, the above link is the format requested on the website for citation)

Box	Number of pads	Cost	Cost per pad (INR)
Banana Overnight Sanitary Pad	8	190.4	23.8
Banana XL Sanitary Pad	8	153	19.13
Super Saver Banana	30 (18XL + 12 ON)	549	18.3
STAYFREE Dry Max All Night combo of 42 pads Sanitary Pad	42	321	7.64
Paree Super Soft & Dry Feel 80 XL Sanitary Pads For Quick Absorb	40	185	4.625

(Table 2: Cost of various brands of single use pads)

Assumptions	Quantity Lower	Quantity Upper
XL Pads per day	3	4
ON Pads per day	1	1
Average Days per month	5	5
Months	12	12
People	3500	3500
Age Range	11-50 years	11-50 years
Women in age bracket	993	993
Cost in a year	INR 4,837,488.83	INR 5,977,211.33
Cost in a year AUD	\$ 87,074.80	\$ 107,589.80

(Table 3: Cost of Saathi Pads)

Assumptions	Quantity Lower	Quantity Upper
XL Pads per day	3	4
ON Pads per day	1	1
Average Days per month	5	5
Months	12	12
People	3500	3500
Age Range	11-50 years	11-50 years
Women in age bracket	993	993
Cost in a year	INR 1,282,320.83	INR 1,557,940.00
Cost in a year AUD	\$ 23,081.78	\$ 28,042.92

(Table 4: Cost of reusable pads bought at market rate)

Product	Number of pads	Cost
Eco femme Full cycle kit (reusable)	7	1570
Saukhyam Reusable (Starter-pack)	2 Day-pad Base, 3 insert	250
Saukhyam Reusable (Sampler-pack)	5	505

(Table 5: Cost of reusable pads)

We were mainly considering between;

- Eco Femme Full Cycle kit which is advertised to be enough for a whole month when watching. It has 2 Pantyliners, 2 Day Pads, 2 Day Pad Plus, 1 Night Pad, 1 Carry Pouch (<https://shop.ecofemme.org/full-cycle-kit-vibrant.html>).
- Saukhyam Sampler - pack includes 2 rectangular type 3 fold pads, 2 fold pads for heavy flow, one base pad and one insert for normal use, and one-night pad (<https://www.saukhyampads.org/products/saukhyam-reusable-sampler-pack-set-of-5>)

Both sets of pads should last a month when being washed after use to allow pads used at the start of a woman's period to be reused during the same period. We also reached out to both Eco Femme and Saukhyam about discounts when buying in bulk. Eco Femme offered a discount from 1604 INR to 1570 INR and Saukhyam offered 330 INR to 250 INR on the starter pack. Assuming a similar 80 INR discount of the sampler pack it would bring the price from 585 INR to 505 INR.

Assumptions	Eco femme Full cycle	Saukhyam Sampler-pack
Reusable Pads	8	5
Months	12	12
People	3500	3500
Age Range	11-50 years	11-50 years
Women in age bracket	993	993
Cost in a year INR	1,559,359	501,577
Cost in a year AUD	\$28,068.46	\$9,028.39

(Table 8: Cost Comparison between Eco Femme and Saukhyam Sampler Pack)

Program Year	Fraction using compostable	Fraction using reusable	Costs	Labour Costs
Year 1	0.8	0.2	\$ 71,465.52	\$ 5,256.00
Year 2	0.6	0.4	\$ 54,050.56	\$ 5,256.00
Year 3	0.4	0.6	\$ 36,635.60	\$ 5,256.00

(Table 9: Overall Costs)

Assuming that at the beginning of the program we can completely phase out single use plastic based pads and have 80% of women using the compostable pads and 20% using the reusable pads. Assuming that we can then have 20% higher uptake of the reusable pads each year and that the pads will last 3 years, meaning we would not need to buy new reusable pads in the second year for women who were given them in the first year.

We are also assuming that we will hire women to work the full time equivalent 2 women working every day of the year at 400 INR a day. These women will act to lead the program, encourage uptake and monitor the composting process and disposal of compostable pads.

With these factors considered the overall costs come out at \$177,920 over the 3-year period.

References

Swachh Bharat Mission - <https://swachhbharatmission.gov.in/sbmcms/index.htm>

About Bloody Time - <https://www.vwt.org.au/projects/about-bloody-time/>

Victorian Women's Trust - <https://www.vwt.org.au/>

Waste Management in India -

[https://en.wikipedia.org/wiki/Waste_management_in_India#:~:text=About%2043%20million%20tonnes%20\(70.165%20million%20tonnes%20in%202030.](https://en.wikipedia.org/wiki/Waste_management_in_India#:~:text=About%2043%20million%20tonnes%20(70.165%20million%20tonnes%20in%202030.)

Domestic Hazardous Waste Disposal in India - <https://www.drishtias.com/daily-updates/daily-news-analysis/domestic-hazardous-waste#:~:text=According%20to%20the%20rules%2C%20Households,deposit%20it%20on%20their%20own.>

Sanitary products available in India - <https://dir.indiamart.com/impcat/sanitary-pad.html>

Wages in Rural India - <https://www.statista.com/statistics/1071319/india-average-earnings-of-employee-rural-by-gender/#:~:text=The%20average%20salary%20for%20male,of%20July%20to%20September%202019.>

Deogarh, Odisha demographics - <https://deogarh.nic.in/demography/>

Biomedical waste in Deogarh -

<https://www.newindianexpress.com/states/odisha/2021/jul/27/odisha-to-barcodemedical-waste-to-check-unregulated-disposal-2335995.html>

Administrative And Support And Waste Management And Remediation Services Companies In Deogarh, Odisha, India - https://www.dnb.com/business-directory/company-information.administrative_and_support_and_waste_management_and_remediation_services.in.odisha.deogarh.html

Odisha Rural Sanitation Policy (Draft) -

<http://www.indiaenvironmentportal.org.in/files/file/Draft%20Plan.pdf>

Odisha, Compliance of Municipal Solid waste management rules, 2016 -

https://forest.odisha.gov.in/sites/default/files/2021-03/Municipal%20Solid%20Waste%20Management%2C%202016_0.pdf

<https://blogs.lse.ac.uk/socialpolicy/2020/09/18/womens-sanitary-health-in-india-a-tale-of-social-inequality-and-basic-sanitation/>

<https://journals.sagepub.com/doi/full/10.1177/0971521518812114>

<https://reliefweb.int/report/india/safe-sanitation-women>

The Paudi Bhuyan -

<https://tribal.nic.in/repository/ViewDoc.aspx?RepositoryNo=TRI28-08-2017115515&file=Docs/TRI28-08-2017115515.pdf>

Useful summary of Paudi Bhuyan

https://shodhganga.inflibnet.ac.in/bitstream/10603/282299/13/13_chapter%204.pdf

Useful map for villages in region near Deogarh -

http://ijrar.com/upload_issue/ijrar_issue_20542097.pdf

<https://www.scstrti.in/index.php/communities/pvtg/113-pvtg/316-paudi-bhuyan>

https://www.ostm.in/tribes_of_odisha/paudi-bhuyan-2/

<https://en.wikipedia.org/wiki/Bhuyan>

<https://magazines.odisha.gov.in/Orissareview/2015/Sept/engpdf/30-34.pdf>

<https://criticaledges.com/2020/07/29/a-walk-to-remember-with-the-sardarji-of-paudi-bhuyian-community/>

Report on Solid Waste Management in the Urban Local Bodies in Odisha -

https://smartnet.niua.org/sites/default/files/resources/Action_Plan_NGT_SWM_Odisha.pdf

Feasibility banana fibre reusable pads (Saukhyam reusable pads)

<https://bmcmwomenshealth.biomedcentral.com/articles/10.1186/s12905-021-01265-w>

Saukhyam: Reusable Sanitary Pads

Saukhyam: Reusable Sanitary Pads using Banana Fibre & Cloth.

<https://www.saukhyampads.org/products/saukhyam-reusable-starter-pack>

<https://www.saukhyampads.org/upload/Saukhyam-for-NGO-Partners.pdf>

Eco femme cloth pads

<https://ecofemme.org/in-action/pads-for-sisters/>

Masika, Eco-femme cloth pads – environmental impacts of disposable pads -

<https://www.youtube.com/watch?v=9xr2xXs7VmA>

<https://ecofemme.org/wp-content/uploads/Dirty-Secrets-New.pdf>

https://ecofemme.org/wp-content/uploads/28-Conversations_GeneralVersion.pdf

https://ecofemme.org/wp-content/uploads/28-Conversations_BoysMenVersion.pdf

Operational guidelines – Promotion of Menstrual Hygiene among Adolescent girls (10-19) in rural areas

<https://nhm.gov.in/images/pdf/programmes/arsh/guidelines/MHS-operational-guidelines.pdf>

Establishment and Management of Community Sanitary Complexes in Rural Areas - A handbook

<https://swachhbharatmission.gov.in/sbmcms/writereaddata/images/pdf/technical-notes-manuals/Community-Sanitary-Complex.pdf>

WaterAid Menstrual Hygiene Management Articles:

- <https://www.wateraid.org/in/publications>

- Strengthening the supply chain of menstrual hygiene products in India - <https://www.wateraid.org/in/sites/g/files/jkxoof336/files/2022-03/Designed%20Version%20-%20MH%20Product%20Supply%20Chain%20Report%20%281%29.pdf>
- Landscape of menstrual hygiene products in India - <https://www.wateraid.org/in/sites/g/files/jkxoof336/files/2022-03/Designed%20Version%20-%20Menstrual%20Product%20Landscape.pdf>
- <https://washmatters.wateraid.org/publications/menstrual-hygiene-management-schools-south-asia-2021>
- <https://www.wateraid.org/in/donate/water-access-menstrual-hygiene-school-attendance>

Odisha State Khushi program:

- <https://www.khushi.nic.in/?p=khushi>
- <https://sarkariyojana.com/khushi-sanitary-napkin-scheme/amp/>
- <https://finance.odisha.gov.in/sites/default/files/2021-02/Budget%20highlights%202021-22-Eng.pdf>

Accredited Social Health Activist (ASHA) workers employment conditions - <https://economictimes.indiatimes.com/news/india/asha-workers-struggle-for-survival-in-shadows-outside-who-spotlight/articleshow/91914347.cms>

Roles & responsibilities of ASHA workers - <http://nhm.gov.in/index1.php?lang=1&level=1&sublinkid=150&lid=226>