

**Sustainable and Cost Effective Production for Environment Friendly Sanitary Napkins – A
Policy Framework**

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Abstract

Health Policy and Systems Research is an emerging field and is focussed on health policies and health systems. In this paper we have identified “the sustainable production and disposal of sanitary napkins” as the issue. It encompasses major goals under the Sustainable Development Goals (SDG) of the United Nations like Goals 3, 5 and 12. It can be easily assumed that a strong awareness base on the need to do away with stigmatising the impurity aspect, and focusing on health, hygiene, convenience and environmental hazards aspects can be the strong driver to creating an informed public demand, statutory legislation and corporate willingness to create cost-effective napkins that come with an efficient back-end support, either for re-use or for disposal. The paper also examines the complexity of the issue beyond the above assumption, in terms of social and environmental justice as well as health of the individual as a concern to re-examine the current conventional production patterns more critically.

Keywords: Sustainable Development Goals, Menstruation, Health, Ecology, Sanitary Napkins

1. Health Policy and Systems Research – Broad Outlook

Health Policy and Systems Research (HPSR) broadly seeks to understand and improve how societies organize themselves in achieving collective health goals, and how different actors interact in the policy and implementation processes to contribute to policy outcomes. By nature, it is interdisciplinary, a blend of economics, sociology, anthropology, political science, public health and epidemiology that together draw a comprehensive picture of how health systems respond and adapt to health policies, and how health policies can shape– and be shaped by – health systems and the broader determinants of health (Alliance for Health Policy and Systems Research, 2011). Health Policy and Systems Research is multidisciplinary; encompasses concern for global, national and subnational issues as global actors and agencies have considerable influence on the decision making especially in low and middle income countries; and focus itself on the design and implementation of policy. Also, it investigates how health systems are financed, organized, delivered and used, how health policies are prioritised, developed and implemented and whether they address the wider health and social goals (Health Policy and Systems Research, A methodology reader, Gilson L ed WHO, 2012)².

Declared Objectives of Health Policy and Systems Research

The objectives of HPSR are:

- Stimulate the generation and synthesis of policy related health systems knowledge
- To promote the dissemination and use of research based knowledge in health systems strengthening.
- Disseminate the knowledge made available to researchers, policy makers and other stakeholders.

² Gilson, L. (2012). *Health policy and systems research: a methodology reader*. Geneva: World Health Organization.

- To develop capacity strengthening.

Methodology behind Health Policy and Systems Research

There are four critical steps in designing a health policy and systems research. They are:

- Identify the research focus and study: HPSR begins by identifying the focus of the study, the issue or problem to be addressed.
- Design the study.
- Ensure research quality and rigour.
- Application of ethical principles.

Achievements of Health Policy and Systems Research on a global level

Health policy and Systems Research (HPSR) has been able to provide necessary impetus to a rethinking on the organisation, financing and delivery of health systems worldwide. It has also positively influenced policy making across countries and more so in Low and Middle Income Countries (LMICs).

- Increased attention to health systems versus a more vertically oriented disease -specific approach; specific approach;
- Recognition that major scale up of health services was unlikely to be successful without major investment in health systems;
- Creation of new funding streams such as GAVI and global fund health systems support component;
- A plethora of new initiatives with strong focus on health systems, e.g., Canada catalytic initiative
- Several partnerships with health systems focus such as Health Metrics Network, Global Health Workforce Alliance;

- Renewed interest in appropriate investments in evaluation and research-e.g., call for health systems research and learning in the context of the G8 Tokyo Summit;
- Launch of new institutions with primary interest in health systems research – Caruso – Health metrics and evaluations institute

In this paper we have identified “the sustainable production and disposal of sanitary napkins” as the issue. It encompasses major goals under the Sustainable Development Goals (SDG) of the United Nations like;

- 1) Goal 3: Good Health and Well Being.
- 2) Goal 5: Gender Equality.
- 3) Goal 12: Responsible consumption and Production.

We have considered the best practices around the country and come up with broader policy suggestions.

2. Human Rights, Environment justice and Sanitary Napkins

Human rights are fundamentally linked to the dignity that one person accords to another. Relationship between human beings for a larger part of human history was governed and barricaded by laws of religion. Judaism, one of the oldest religions of the world, has in its mosaic law scriptures Hebrew terms such as Nid·dah’ and Da·weh’ to refer to anything that was impure and affected by certain illness. One is likely to be surprised to know that these are the very same terms used to define a menstruating woman. The idea of menstruation is conceptualized as an unclean and impure process that a woman has to be ashamed of instead of being a normal biological process. It is in this context that one should examine how a menstruating woman is perceived in contemporary societies.

Sexual and Reproductive Health as a Human Right

Sexual and reproductive rights are closely linked to the quality of health products that are widely available and used. Sanitary napkins hold a large share of economy as an over-the-counter health product. Non-toxic, chlorine-free biodegradable sanitary napkins have a major potential to lead the way towards a culture of non-compromise when it comes to the manufacturing quality and safer disposal of these reproductive health products. While there are also a small share of alternative menstrual hygiene products like cloth pads and menstrual cups which are known as more ecologically conscious options, discussion on scaling them keeping in mind the socio-cultural and economic barriers are currently beyond the scope of this paper.

Relevance of an Alternative Model for Sanitary Napkins from the framework of Sexual and Reproductive rights

Despite being a biological process that is inherent to our being as the other body functions like digestion or circulation, the monthly shedding of uterus lining along with blood vessels somehow evokes a feeling of ‘impurity’ or ‘disgust’ in most societies. Lack of public discourse on the physical and emotional changes that women and girls undergo for about 30-40 years is seen to affect the general mental well-being, as seen in alarming numbers of school dropouts and workplace leaves taken on account of menarche, menstrual difficulties and extreme cases of disorders like Poly Cystic Ovarian Disease (PCOD). In many rural areas, girls in upper primary and secondary schools walk to school and spend anywhere between 6-10 hours a day outside the home. At school menstruating girls are faced with poor facilities – inadequate water for washing, lack of soap, no privacy, non-functioning or inadequate toilets and no disposal facilities. Unable to convey these difficulties in a formal environment, we see a trend of menstrual products like

pads and tampons being hidden from plain sight or conversations around these in hushed circles. The recent controversy of a woman's instagram page being taken off citing violation through an upload of a period-stained wear is an instance that shows the society's reluctance to normalize menstruation.

There is no doubt that the acknowledgment of sanitary napkins and the need for it will only enhance its status as a universal symbol of sexual and reproductive well-being. However, recent events across various parts of India, prompted us to rethink our belief systems and redesign our modus operandi in successfully campaigning for the extensive use of sanitary napkins. When couple of female factory supervisors strip searched over forty female employees to find out who left a soiled sanitary napkin left in their factory bathroom, they were essentially strip searching our collective consciousness and mocking the liberal values we ought to uphold. This may of one the few isolated but reported incidents among many similar ones, which has escaped the ever-narrowing lens of media attention and its skewed priorities.

Such a distasteful incident doesn't fade away without leaving certain relevant questions such as why such an extreme reaction from the supervisors when confronted with menstrual waste; how do we plan to improve access to sanitary napkins; how do we tackle the disposal of growing numbers of menstrual fluid-soaked non-biodegradable waste; could we be looking for alternatives and also improving the safety aspect of existing technologies. One can only fathom the enormity of the question at hand, when one realizes even in a country like India which has less than 12-13% of sanitary napkin coverage, we are confronted with disposable sanitary pads weighing an alarming 9000 tonnes, eating away our landscapes³.

³Basu, S. (2013). Kicking up a stink. Downtoearth.org.in. Retrieved 13 December 2016, from <http://www.downtoearth.org.in/content/kicking-stink>

Access to Sanitary Pads

The importance of ensuring access to sanitary pads should justify as an end in itself as well as an instrument that helps to achieve better growth in other social indicators. Lack of reliable statistics on the access is hurting the case of policy makers in establishing cross linkages and proving why access to napkins is related to general health and education based indicators.

More often than not, the fact that lack of proper menstrual protection is concomitant to the better performance in many other social indicators such as dropout rates and teenage pregnancy skips the collective thought process of administrators and policy makers. The most popular way of discouraging the use of non-sterile clothes has been tackled through the sale of sanitary pads through government and non-government channels⁴ at a very subsidized rate. In our suggestion of switching from conventional disposable sanitary napkins to non-toxic chlorine-free biodegradable option, can be achieved via procurement of biodegradable sanitary napkins by government agencies and distribution of the same at a subsidized rate. Whilst doing this, it is important to make sure that price points at which the pads are sold by government agencies should either match or be less than the ones that are available in the market, with it additionally being biodegradable. If data from Fig 1 is anything to go by, Anandi Pad from Aakaar Innovations has been frontrunner in terms of offering biodegradable and reusable pads at a price point that is affordable by a majority of Indian women.

Jhamwal, N (2015), Why are we pretending that there isn't a growing mountain of menstrual waste we need to deal with? Yahoo! News. Accessed on 30 January 2017 from <https://in.news.yahoo.com/why-are-we-pretending-that-there-isn-t-a-growing-mountain-of-menstrual-waste-we-need-to-deal-with-111659074.html>

⁴Exploring Menstrual Hygiene Management in Schools. (2013) (1st ed.). Retrieved from [http://www.unicef.org/wash/schools/files/4_UNICEF_Rajashi_PPT_\(Final\).pdf](http://www.unicef.org/wash/schools/files/4_UNICEF_Rajashi_PPT_(Final).pdf)

Sanitary Napkins	Cost	Biodegradable	Disposable
Popular Brand In Market *			
Stayfree Secure Cottony Soft (Johnson & Johnson)	Rs 2.50/pad	NO	YES
Carefree Regular (Johnson & Johnson)	Rs 5.25/pad	NO	YES
Whisper Choice (Procter & Gamble)	Rs 4.00/pad	NO	YES
Whisper Ultra Soft XL Wings (Procter& Gamble)	Rs 11.14/pad	NO	YES
Alternatives (Non-Profit)			
Eco Femme Day Pad (Eco Femme)	Rs 236.00/pad (Available to rural women at subsidized cost)	Partially	Washable/Reusable
Falalin Cloth (SEWA Rural)	Rs 10.00/piece (Subsidized rate)	YES	Washable/Reusable
My Pad (Goonj)	Re 2.00/pad	YES	Washable/Reusable
Alternatives (For-Profit) Women's SHGs make and sell these pads			
Jayaashree Industries Pads	Re 1.00/pad	Partially	YES
Anandi Pad (Aakaar Innovations)	Rs 2.50/pad	YES	YES
* Price per pad is approximate, calculated based on MRP			

Figure 1 Price points of Sanitary Napkins Image credit: Grist Media

Consumer rights and information

In a study undertaken in 2014, it was found that most tampons and sanitary napkins contain dioxins, an endocrine disruptor and highly toxic persistent environment pollutant, that is also listed under Stockholm Convention on POPs since 2004.⁵ In India, the Indian Standard Specification for Sanitary Napkins (revised in 1993)⁶ and related studies by Department of Consumer Affairs⁷ only require the manufacturers to disclose the following within the product as instructions – method of use, indication to which side is absorbent, disposal instruction, frequency of recommended change, environmental concerns (post-disposal and during manufacturing), date of manufacture and expiry date. While the packaging needs to only carry the manufacturer's name or trademark, number of sanitary napkins contained in it, size, and

⁵ Nicole, W. (2014). A Question for Women's Health: Chemicals in Feminine Hygiene Products and Personal Lubricants. *Environmental Health Perspectives*, 122(3), A70–A75. <http://doi.org/10.1289/ehp.122-A70>

⁶ IS 5405 (1980): Sanitary Napkins [MHD 14: Hospital Planning]

⁷ Sanitary Napkins. Retrieved from consumeraffairs.nic.in/consumer/writereaddata/Sanitary%20Napkins.pdf

instruction for use and disposal. Most products do not comply with one or few of the above parameters and none disclose the chemicals that are contained in the absorbent gels, filler or covering of their products. These chemicals are known to have serious health impacts on long term exposure, and lack of data or studies to back this makes it a challenge to educate women on such consequences. Moving the manufacturers to comply with full disclosure of chemicals used is a crucial need to respect basic consumer rights and health information.

Environment legislation

With the lack of proper enforcement of Extended Producer Responsibility (EPR) regulations, dealing with menstrual waste has been a very complex challenge for local self-governments and public alike. This continued to be so until 2014, when the southern bench of National Green Tribunal took up the issue of holding sanitary napkin manufacturers to be responsible for disposal of sanitary napkins by virtue of the EPR clause under the Plastic Waste Management Rules, 2016. In April 2014, the Southern Bench of the National Green Tribunal issued notice to six manufacturers of leading sanitary napkin companies, the state government, and Chennai Corporation in response to a petition filed by a social activist named Gopi Vijaykumar. Double standards of napkin manufacturers are evident in the case of Kimberley Clark NZ Envirocomp as they have taken responsibility to dispose sanitary waste in certain countries which have stricter norms, whereas voluntarily choose not to in countries like India. The need and advantage of biodegradable sanitary napkins is that they ensure disposal that is not heavily reliant on technological infrastructure, which governments of emerging economies with high population like in India cannot afford. Disposal of Napkins

As per the 68th Round Survey conducted by the National Sample Survey Office (NSSO), Union Ministry of Statistics and Project Implementation conducted during the period July 2011 – June January 2017

2012, assuming all urban females and 25% of the rural females in the age group of 15-49 years use sanitary napkins, then, on the basis of 4 pads per person used during the monthly menstrual period and during working hours, the number of Pads which would invariably be flushed down the toilet owing to lack of disposal facilities in the workplaces would be a staggering 12.7 crore per month. Even assuming no rural female uses Sanitary Pads, then the number is still 6.84 crore per month.

Provision of labelled paper bags as a part of EPR should go a long way in ensuring environment friendly disposal mechanism. Despite the efforts of SWaCH, an enterprise established to promote safe menstrual practices to promote low cost paper bags in 2010, it was reported that none of the manufacturers showed any interest.

Social Justice

This is a problem unique to India, where despite the Supreme Court directive, **manual scavenging continues to exist**. Conservancy workers dive into clogged sewer drains when machines cannot do the job and unclog the drains by hand. With the lack of proper disposal mechanisms in place, and no widespread efforts on the part of companies to educate consumers about how pads should be disposed after use, many Indian consumers continue to flush used sanitary napkins or throw them into drains. As these products travel downstream along the sewage line, the SAAP gel in them continues to absorb external sewage fluid and expands until it balloons out and manually blocks the sewage pipes. At this point manual intervention is needed to unblock the pipes.

If used napkins are not flushed or thrown into drains, they are routinely mixed up with household waste, compostable waste and recyclable waste and thrown out. In an effort to segregate

recyclable waste, conservancy workers and rag pickers end up manually handling bloody, used sanitary napkins at great danger to their health and great danger to their dignity.

The precariousness of sewage work is evident in the deaths of thousands of *dalit* sewage cleaners every year from accidents or debilitating ailments such as leptospirosis, viral hepatitis and typhoid due to sudden or sustained exposure to noxious gases like methane, hydrogen sulphide, carbon dioxide and carbon monoxide while manually unclogging and cleaning sewers in Indian cities.

3. Legislative Changes – Past, Present and the Future

The legislative aspects relating to sanitary napkins can be extended to regulation of the manufacturing, distribution, sales, categorisation, handling and collection, and, disposal of sanitary napkins. Within these broader processes, categorisation of waste has been a major point of debate. There is no definite answer to whether menstrual waste be considered as problematic household waste⁸ or bio-medical waste⁹ since it is contaminated with blood and body fluids. Without a proper guideline on handling problematic waste streams including hygiene products and keeping in mind the social stigma attached to menstruation, it is difficult to arrive at an informed conclusion.

Handling and Collection

The management of menstrual hygiene waste and EPR requires serious consideration on part of governments at all levels as it directly affects the dignity and health of millions of waste-pickers, both protected under the Right to Life enshrined in Article 21 of the Indian Constitution. Various labour laws also guarantee occupational health and safety measures for workers, however, in

⁸ According to the Municipal Solid Waste (Management and Handling) Rules, 2016

⁹ According to the Bio-Medical Waste (Management and Handling) Rules, 2016

reality, there is no respite for waste workers as far as actual handling of sanitary waste goes.

Disposal of Sanitary Napkins

There are no concrete laws in place for menstrual waste management in India. It is treated as reject waste and one possible categorization under sanitary waste is it being treated as bio-medical waste. Due to ambiguities, inherent in India's waste laws, proper disposal and management of used sanitary napkins confounds researchers, social workers, and policy makers alike. The source of this growing stream of reject waste is in households and falls under the purview of municipalities but one possible interpretation categorizes sanitary waste as bio-medical waste. In most parts of India, used sanitary napkins are mixed with all other forms of waste and collected by municipalities.

- Bio-Medical Waste Management Rules, 2016

Under Bio-Medical Waste (Management and Handling) Rules revised in 2016, it prescribes waste containing blood, body fluids or faeces as bio-medical waste. Strictly speaking, such interpretation requires the assumption that the process of collecting menstrual fluids takes place in the course of 'treatment' of human beings. All bio-medical waste is required to be collected, stored, transported and processed separately and exclusively in Bio Medical Waste Treatment Facilities. Bio-Medical waste should be properly marked in distinctive packaging and given the presence of chlorinated wood pulp and plastics, menstrual hygiene waste has to be autoclaved (sterilized under high pressure using steam), micro-waved (disinfecting through moist heat generated by microwaves) or burnt in approved and registered bio-medical incinerators. Obviously, the treatment of menstrual hygiene waste as biomedical waste faces opposition from municipalities due to the sheer volume (an estimated 5% of all MSW) and complex logistics

associated with separate handling of this stream of waste.

- Solid Waste Management Rules, 2015

As per the newly revised rules, Manufacturers or brand owners or marketing companies of sanitary napkins and diapers shall explore the possibility of using all recyclable materials in their products or they shall provide a pouch or wrapper for disposal of each napkin or diapers along with the packet of their sanitary products. This gives us an opportunity to advocate for switching from conventional manufacturing techniques to bringing in biodegradable napkins in the mainstream. The rule also requires the waste generators to wrap the napkin in proper pouches and store it in separate bins, but what happens after is something that is still being discussed among government bodies.

- The Plastic Waste Management Rules, 2016

The presence of plastic in present day napkins is overbearing in its composition as a percentage of the total mass. The vicious presence of plastic in the form of plastic polymer called polypropylene starts from dry-weave top sheet, the upper most layer found on napkins. Further, padding is composed of wooden pulp mixed with super absorbent polymers and leak-proof layer being made from a particular brand of impermeable polyethylene. The non-biodegradable nature of plastic prompts policy experts to think beyond the ordinary scheme of things and puts pressure on administrators to mainstream the alternative models.

Even though commercial sanitary napkins contain a significant amount of plastic, the rules does not clearly state that commercial sanitary napkins and diapers come under its purview. It is left up to the court to interpret the law in this context. The law has an Extended Producer's Responsibility (EPR) clause; the producers were required to work out the modalities of waste

collection system based on EPR within six months from the publication of the new rules with their respective State Urban Development Departments. However preference is given mainly to multi-layered plastic sachet or pouches and non-recyclable multi-layered plastic for now.

4. Ongoing Initiatives in Awareness and Safe Spaces for Menstruation

Anything remotely close to menstruation and sanitary napkins, being addressed on platforms apart from TV ads, has become very common across various media in mainstream, only in the past decade. Activism on safe and sustainable menstruation over the years has culminated in few awareness programs, social enterprises, self-help groups, which see pad-making for livelihood. Uger pads (Udaipur), Goonj (Anshu Gupta), Ecofemme (Auroville) are major Indian players active in addressing rural and urban consumers. All of these groups have used cloth, reinforced the traditional practise, elevated the dignity, while re-purposing it with comfort element and created a dialogue around the safety, shame, health, hygiene and acceptance around menstruation. Menstrupedia (Aditi Gupta), addressing menstruation, with facts, in a child-friendly way is a reliable resource, available in few regional languages also.

A lot of sporadic movements led by women groups, especially post the landmark judgement by Bombay High Court directing the Haji Ali Dargah trust to allow women inside the sanctum sanctorum, have brought up the social exclusion, well woven into our society, on the forefront. Legal validation for women's entry in Shani Shingnapur's sacrarium (spearheaded by Bhumata Brigade, Trupti Desai), or 'Happy to Bleed' campaign (Nikita Azad) against Sabarimala temple priest who upheld the temple entry restriction towards menstruating females, have been significant in gaining support from urban, social-media active women. Awareness, finances, mass support all play major role in regulating the attitudes and policies that direct menstruation. Red Tent Movement (RTM), inspired by Anita Diamant's book, aims at focussing menstruation

and letting women be comfortable about them, has been garnering strong following internationally. RTM has a spiritual tone to it, although steering away from anything theistic.

National Rural Health Mission(NRHM) (2005), aims at providing health care to all and bringing major improvement in health system, especially in rural areas and for underprivileged sections of the society, particularly women and children. Adolescent Reproductive Sexual Health (ARSH) is one of the strategies under Reproductive and Child (RCH) component of NRHM. It's module on Inclusion of Social and Gender Equity, there's a specific Sanitary Napkin Programme; however, apart from making sanitary napkins available for free for adolescent girls, nothing else happens in most of the states. In Tamil Nadu, incinerators have been installed in few schools. Under Kishori Suraksha Yojana program (2015) the Uttar Pradesh government, focuses on training educators to sensitively introduce menstruation, apart from providing sanitary napkins. New international players and the existing big brands now exploit the market, targeting the socio-emotional aspects around menstruation. The central government, through SABLA, Right to Education, Swachh Bharat etc., have revamped facilities in schools, and promoted attitudes favouring adolescent girls. The extent of implementation, however, varies between states. Various NGOs through their programs, especially on awareness creation, have helped raise the bar on health and sanitation attitudes.

Swachh Vidyalaya Abhiyan emphasises on infrastructure and behavioural aspects to impact safe, inclusive menstruation. Separate toilets for girls and boys, one incinerator in girls' toilet block, dustbins, running water, soap, hooks for hanging cloths, visuals depicting hygiene messages, stockpiling sanitary pads, clothes, annual maintenance contracts on infrastructure; and training teachers to talk about menstruation to boys and girls, and providing space for them to discuss, integration of curriculum, especially since educated children are potent tools to educate the

society as a whole. These have shown an overall increase in enrolment (12% - grades 1-5 and 8% - grades 6-8), lower drop-outs, increased retention of female teachers, and improved girls' enrolment rate and academic performance (UN-Water, 2008).

Overall, it can be easily assumed that a strong awareness base on the need to do away with stigmatising the impurity aspect, and focusing on health, hygiene, convenience and environmental hazards aspects can be the strong driver to creating an informed public demand, statutory legislation and corporate willingness to create cost-effective napkins that come with an efficient back-end support, either for re-use or for disposal.

5. Policy Prescription

We have found that within the existing legislation there is potential for creating a policy framework to accommodate an alternative production and supply model for biodegradable sanitary napkins to phase out currently available napkins in India. The prescription aims to work on the right of information for the users and accountability from producers ('Polluter pays' principle) to be a solution to the existing health and environment issues caused by conventional disposable sanitary napkins.

Alternative production models for napkins

Using plant fibre as the absorbent layer is the most promising alternative model for production of bio-degradable napkins. Less liquid-retention, and non-effective form factors, mainly reduces its absorbing capacity. Addition of poly-gels to increase absorbency is the first step in adding the non-biodegradable factor to pads. At present, there are no good, scalable biodegradable options here. Further layers of dry weave sheet to channelize flow into the pad, also is a non-biodegradable component. Use of flannel material or bamboo cloth is seen as alternatives. Many

pad manufacturers use flannel/combed cotton to give this effect in their re-usable pads. Apart from these, the bottom-most layer, which is usually aimed to be a stain-resistant layer, poses maximum restriction to making a pad biodegradable. Polyurethane layered cotton; umbrella fabric and rubber are being used here in most cost-effective reusable pads; while wax-coating this layer is also a suggestion which is being adopted by Jani pads, based out of Kenya.

Ecofemme, Shomota, Goonj, Uger are fully reusable pads from India; of which Uger and Goonj are fully biodegradable. Anandi pads from Aakar Innovations is said to be biodegradable, but lack of supporting evidence makes their case weak. Others such as Saathi pads are still not in market. Few others claiming to be biodegradable also have no proofs, as seen from many individual tests.

Behavioral Changes

- Prohibitory Approach and Imposition of Social Sanctions

Notwithstanding the problematic categorization of menstrual hygiene waste, it is imperative to prohibit the incineration of menstrual hygiene waste where the product contains chlorinated wood pulp and plastic. There should be a prohibition on the flushing of menstrual hygiene waste down the toilets as they lead to clogging sewers.

- Campaigns to Disseminate Information on Proper Disposal Techniques

As far as the disposal is concerned, the most important step is cover the soiled napkin in a leak proof bag and store it separately outside the reach of pets and animals. While doing so, it is important to make sure that it is not burned, flushed or mixed with other household wastes¹⁰. The

¹⁰Ladies, be careful when you throw away the sanitary napkin. (2017). Retrieved 10 January 2017, from <http://www.hindustantimes.com/health-and-fitness/ladies-be-careful-when-you-throw-away-the-sanitary->

conventional sanitary napkins pose a problem in disposal due to its compact structure. Napkins where the plastic layer can be separated from the absorbent filler are easier to dispose, by trashing the cleaned plastic layer with plastic waste stream and composting the absorbent filler layer of cotton/wood pulp. This is where the need for non-toxic chlorine-free biodegradable sanitary napkins becomes more relevant. It also gives space to explore the scope of compostable plastics that are still being innovated.

- **Legislative Lobbying for Socio-Political Change**

Through consumer rights, the existing products should be made liable to disclose full product composition, including the chemicals used in the gel and filler and indicate hazardous symbol where required (for instance, in the case of dioxins). Push to implement the Solid Waste Management Rules 2015 and Plastic Waste Management Rules 2016 can be led by local self-governments and bodies to bring make manufacturers accountable to the processes.

Improving Access to Sanitary Napkins

Governments can provide concessions to manufacturers of biodegradable sanitary napkins in order to boost production. The government also needs to ensure that these napkins are integrated into the schemes under NRHM and Swacch Vidyalaya Abhiyan to supply free napkins to girls and women from economically backward and at-risk scenarios.

Market outreach through petitions/demand for stocking all available environment friendly options, including biodegradable napkins, cloth pads and menstrual cups needs to be additionally done to ensure access in all areas.

WASH (Water-Sanitation-Hygiene) Infrastructure requires schools and workplaces to ensure that

menstrual hygiene products are made available at all times. Toilets need to have a clean collection bin solely for sanitary napkins. Instructions to avoid burning/flushing must be placed in the toilets.

Some ways to ensure that Menstrual Hygiene Management is supported by schools are:

- Presence of toilets and water in/near all toilets for personal hygiene.
- Incinerators/bins available in girls' toilets for hygienic disposal of sanitary towels.
- Safe final disposal of contents.
- Sanitary pads available in school in case of emergencies.

6. Conclusion

Social perception of menstruation and menstrual cycle as the sole responsibility of women needs to transform into a collective responsibility of society at large to ensure that the health and well-being of the individual and environment are not adversely affected due to ill informed choices. A multidimensional approach should be targeted in finding sustainable social and scientific solutions to the address the various complexities in the menstrual hygiene management area. While the authors feel that a complete 'switch' to eco-friendly alternatives like cloth pads and cups are required to realize the larger vision of a 'zero-waste' society, taking into account the sensitive socio-economic barriers and gender imbalance in our country, a shift from conventional disposable sanitary napkins to biodegradable napkins can be the first step towards it.