Menstrual Waste Management: As Under Served Issue
Session 3: Emerging Solutions

Disposal of Menstrual Sanitary Waste: Challenges and Solutions

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Guideline for Presentation:

- What is the **problem** you are addressing
- What is your **innovation**
- What part of the **value chain** do you address through the innovation
  - Product
  - Disposal
  - Behavior..)
- What is the **technology** aspect of it
  - Data
  - Research to back it up)
- User perspective - **Feedback**
- **Financial** model & **scalability**
Calculation of Menstrual Load in Nepal:

**Menstrual Waste Management in Nepal**

Based on 2016 Data

**Menstrual Waste Load for Nepal**

\[
\text{8 per cycle} \times \text{12 pads per month} = 10,577,936 \times 12 = 126,935,232 \text{ pads per year}
\]

*8,814,949 menstruating girls and women

**Menstrual Waste Load in Schools**

\[
3,193,038 \times 8 = 25,544,304 \times 12 = 306,531,648
\]

*3,193,038 menstruating girls go to school

7,492,707 (85%) females use clothes & other products

1,322,242 (15%) females use sanitary pads
The Problem: Safe disposal of waste of the sanitary products

LIFE SPAN OF SANITARY PRODUCTS

COMPOSTABLE SANITARY PRODUCTS
ONE TIME USE
TAKES 3 TO 6 MONTHS TO DECOMPOSE

NON-COMPOSTABLE SANITARY PRODUCTS
ONE TIME USE
TAKES 800 TO 900 YEARS TO DECOMPOSE

REUSABLE SANITARY PRODUCTS
MULTIPLE USE
TAKES 1 TO 10 YEARS TO DECOMPOSE
Problems caused due to poor disposal practices
Innovation: Menstrual waste disposal through Vermi Composting
Technology: Bio Vermi technology
Value Chain: Product – Disposal - Behaviour

- Comfortability? √
- Fragrance? √
- Price? √
- Brand? √
- Disposal? X
- Environment? X

Disposing sanitary pad or a tampon:
1. Wrap in paper
2. Put in dustbin
3. Close the lid

“Clean, Green, Healthy, Environmental and Climate Resilient Community”
SANITARY PRODUCTS AVAILABLE IN NEPAL

10 MULTI USE PRODUCTS
- Menstrual Cups (4)
- Cloth Pads (6)

47 SINGLE USE PRODUCTS
- Sanitary Pad (46)
- Tampons (1)

1 COTTON WITH NATURAL DYE
1 COTTON WITH CHEMICAL DYE
1 COTTON WITH CHEMICAL DYE, FALATIN
1 VELVET & POLYESTER
1 COTTON WITH CHEMICAL DYE, FALATIN & HANDSWEN

1 LOOSE CLOTH
5 SEWN CLOTH PAD
19 REGULAR
6 WITH SAP
13 WITHOUT SAP
27 ULTRA
27 WITH SAP
0 WITHOUT SAP
Research Study: Categorization of available menstrual products

- **GREEN**
  - Lesser chemicals that are hazardous to women’s health and also have a high degradation rate.

- **BLUE**
  - Traditional method reusable cotton cloths used as sanitary pads degraded produced from Organic Cotton with Natural dye.

- **Orange**
  - Lesser health impact than the sanitary pad which falls in red.

- **RED**
  - Made up of synthetic plastic and presence of SAP, has negative health impacts during use; environmental impacts when disposed off.
<table>
<thead>
<tr>
<th>Tray</th>
<th>Code</th>
<th>Product Type</th>
<th>Week 1 (12th April)</th>
<th>Week 21 (20th Sep)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tray 1</td>
<td>T1G1</td>
<td>Tampon</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>Tray 1</td>
<td>T1G2</td>
<td>Peripad (Cotton Gauze)</td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>Tray 2</td>
<td>T2G3</td>
<td>Commercial Pad-degradable (Pinewood Pulp, bio plastic)</td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>Tray 2</td>
<td>T2G4</td>
<td>Semjong (Pad Man) Cotton Pulp with Super Absorbtion Polymer (SAP)</td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
</tbody>
</table>
## BLUE (Reusable-Cloth)

<table>
<thead>
<tr>
<th>Tray</th>
<th>Code</th>
<th>Product Type</th>
<th>Week 1 (12th April)</th>
<th>Week 21 (20th Sep)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tray 3</td>
<td>T3B1</td>
<td>Traditional Use Cotton Cloth (Reusable)</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Tray 3</td>
<td>T3B2</td>
<td>Commercial Cloth Chemical Dye (Reusable)</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Tray 4</td>
<td>T4B3</td>
<td>Local Cotton with Natural Organic Dye (Reusable)</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
<tr>
<td>Tray 4</td>
<td>T4B4</td>
<td>Micro fiber Chemical Dye (Reusable)</td>
<td>![Image]</td>
<td>![Image]</td>
</tr>
</tbody>
</table>
### ORANGE (Single Use- Regular Commercial)

<table>
<thead>
<tr>
<th>Tray</th>
<th>Code</th>
<th>Product Type</th>
<th>Week 1 (12th April)</th>
<th>Week 21 (20th Sep)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tray 5a</td>
<td>T5O1</td>
<td>Commercial Pad (Regular) Plastic with SAP</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>Tray 5b</td>
<td>T3O2</td>
<td>Commercial Pad (Regular) Plastic with SAP</td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
</tbody>
</table>

### RED (Single Use – Ultrathin Commercial)

<table>
<thead>
<tr>
<th>Tray</th>
<th>Code</th>
<th>Product Type</th>
<th>Week 1 (12th April)</th>
<th>Week 21 (20th Sep)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tray 6a</td>
<td>T6R1</td>
<td>Commercial Pad (Ultrathin) (Plastic with SAP)</td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>Tray 6b</td>
<td>T6R2</td>
<td>Commercial Pad Ultrathin Pad (Plastic with SAP)</td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
</tbody>
</table>

HECAF 360: Vermicomposting sanitary napkins: A short description and history of the project. A journey towards Green, Healthy, Environmentally and Climate Resilient Communities.
Data Recording: Weekly recording of Environmental parameters

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Temperature</th>
<th>Humidity</th>
<th>Moisture</th>
<th>Other Parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/01</td>
<td>25</td>
<td>80</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>01/02</td>
<td>26</td>
<td>75</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>01/03</td>
<td>27</td>
<td>70</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>01/04</td>
<td>28</td>
<td>65</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>01/05</td>
<td>29</td>
<td>60</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>01/06</td>
<td>24</td>
<td>90</td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>01/07</td>
<td>23</td>
<td>85</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>01/08</td>
<td>22</td>
<td>80</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>01/09</td>
<td>21</td>
<td>75</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>01/10</td>
<td>20</td>
<td>70</td>
<td>65%</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>01/11</td>
<td>19</td>
<td>65</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>01/12</td>
<td>18</td>
<td>60</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>01/13</td>
<td>17</td>
<td>55</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>01/14</td>
<td>16</td>
<td>50</td>
<td>85%</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>01/15</td>
<td>15</td>
<td>45</td>
<td>90%</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>01/16</td>
<td>14</td>
<td>40</td>
<td>95%</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>01/17</td>
<td>13</td>
<td>35</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Note: Additional data for other parameters not shown in the table.
Data Recording: Result of Environmental parameters

Variation of Environmental Parameters over the weeks
Data Recording: Result of Physical parameters

<table>
<thead>
<tr>
<th></th>
<th>Wt. of manure</th>
<th>Wt. of pad</th>
<th>Wt. of vermi (gm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>1.958</td>
<td>0.006</td>
<td>0.066</td>
</tr>
<tr>
<td>G2</td>
<td>2.260</td>
<td>0.008</td>
<td>0.084</td>
</tr>
<tr>
<td>G3</td>
<td>2.196</td>
<td>0.01</td>
<td>0.028</td>
</tr>
<tr>
<td>G4</td>
<td>2.350</td>
<td>0.01</td>
<td>0.076</td>
</tr>
<tr>
<td>B1</td>
<td>2.312</td>
<td>0.052</td>
<td>0.048</td>
</tr>
<tr>
<td>B2</td>
<td>2.090</td>
<td>0.01</td>
<td>0.084</td>
</tr>
<tr>
<td>B3</td>
<td>2.232</td>
<td>0.01</td>
<td>0.022</td>
</tr>
<tr>
<td>B4</td>
<td>2.326</td>
<td>0.062</td>
<td>0.020</td>
</tr>
<tr>
<td>P1</td>
<td>2.426</td>
<td>0.1</td>
<td>0.110</td>
</tr>
<tr>
<td>P2</td>
<td>2.542</td>
<td>0.012</td>
<td>0.048</td>
</tr>
<tr>
<td>R1</td>
<td>2.540</td>
<td>0.022</td>
<td>0.024</td>
</tr>
<tr>
<td>R2</td>
<td>2.652</td>
<td>0.01</td>
<td>0.144</td>
</tr>
</tbody>
</table>
HECAF 360: Vermicomposting sanitary napkins - A short description and history of the project, its value to our Zero Waste journey, and can individuals or communities easily adopt it.

User Perspective: Direct Communication
Scalability:
1 Scope
This standard covers the requirements for disposable (non-reusable) sanitary napkins for external use.

2 References
The standards given in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards.

3 Materials
All types of sanitary napkins basically consist of three major components:
- A cover or the top sheet;
- An absorbent core, and;
- A barrier or bottom sheet.

3.1 Cover/Top Sheet
- The cover/top sheet is the material which comes in contact with skin during use. The cover of sanitary napkins shall be of good quality cotton, rayon, knitted, woven, or non-woven fabric or any other materials with sufficient porosity to permit the assembled pad to meet the absorbency requirements.

3.2 Absorbent Core
- An absorbent core forming the middle layer(s) shall consist of filler materials, such as cellulose pulp, cellulose wadding, tissue, cotton, wood pulp, other absorbent and super absorbent materials or combination of these materials, etc. It shall be free from lumps, oil spots, dirt or foreign material.

3.3 Barrier or Bottom Sheet
- The barrier shall be made of suitable leak-proof material so that it meets the requirement specified in 7.2.

4 Types and Shapes of Sanitary Napkins
- Type 1: The sanitary napkin shall be of following types:
  - Thick napkin;
  - Thin napkin.

  NOTE: - The thin napkins contain a compressed sheet of absorbent material in the core, whereas thick napkins are referred to as fluff pulp napkins.

4.2 Sanitary napkins can be of various shapes and design such as wings/no wings, tab/fab/less etc., as per purchaser’s needs.

  NOTE: Sanitary napkins with wings provide better grip on the undergarments so that napkin remains in its position under dynamic conditions. Some napkins can also be folded to be carried in a small pouch.
If you want to find me?

HEALTH ENVIRONMENT & CLIMATE ACTION FOUNDATION

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