Jasmines, roses and calendulas; the names are enough to give us a pleasant sensation. But have we ever visualized the scene behind the curtain? Just imagine... the journey of these flowers, the supply chain for these flowers who plucked them, when were they plucked and how they reached your doorstep early morning with the same fascinating fragrance as while it were blooming in the gardens.

Today we are going to travel behind the curtains of a few occupations and the women involved in these occupations. Self Employed Womens’ Association (SEWA), contributed to rigorous research in this field where women worked long hours in physically exhausting postures resulting in risks of wide range of occupational problems.

For example: Incense stick rollers (agarbatti workers) work for long hours in the same bent position; as a result of which they get neck and back aches, and pain in the arms, legs and abdomen. Embroidery workers sit cross legged on the floor or with legs outstretched and with their bodies slightly bent forward. Readymade garment workers sit on high stools with legs either hung down or bent inwards, with no back support and lean forward while working at their machines. All these postures result in back ache, and pain in limbs and joints. Continuous peddling of sewing machines also results in swollen feet. In addition to these, poor vision, eye strain, constant watering of eyes, headache, dizziness, gastric diseases, and fatigue are common among agarbatti, embroidery and readymade garment workers. Anemia, inadequate lighting, poor ventilation and long hours in cramped postures are some of the contributing factors.

*Kamuben* (flower picker) of Bhetawada village, used to work from midnight to 4 am. Held a kerosene lantern in one hand and plucked the flowers with other. SEWA Bank learned such unusual working hours and habit. Over a period of research, designed a solar-powered head band. The women took loan to pay for the solar head band. Now, she can pluck flowers with both hands eventually resulting in increase in her productivity. Now she finishes all her work, before the bus leaves for the flower market. She feels proud to have earned a handful.

*Salt workers* of Gujarat, are found to be working bare feet for long hours in the salt pans in the scorching heat. Due to this they develop ulcers in feet and hands with irritation in eyes and hypertensive disorders as well. SEWA collaborated with National Institute of Occupational Health (NIOH), and developed gum boots and sun glasses to prevent their occupational hazards.

*Gum collectors*, walk long distances, bare feet in deserts in search for gum. They used to be bruised by the thorny bushes and were accompanied by hypertensive disorders, giddiness and
dehydration. Also they were scared of insect bites, even snake bites at times. SEWA Bank provided them footwear and a long handled sickle to overcome all the hurdles.

Babuben Deajibhai Parmar (waste picker), 52 yrs; stays in Bapunagar in Ahmedabad, Her husband does not work and she has to make a living for seven persons in the family. She has been working as waste picker since 25 years. She gets up at 4 am. Thereafter starts her work at 5 am. Collects waste materials – mainly metallic, plastic, paper and glass. Babuben said “I get pricked and bruised by blades and glass almost daily while collecting waste”. She has to walk about 4-5 kms while collecting the waste and walks back home with 20-30 kgs of waste on her back. She says, “I find it very difficult to carry all this waste on my back and walk to the local contractors’ godown which is about 1-2 kms from my home”. She then cooks food for the family and then carries the waste back to the open space where she will now sort the waste into metallic, plastic, paper and glass. This takes another 2-3 hours. After completing the sorting she goes to the contractor and sells the waste without any negotiation for Rs. 20-25 only. She adds, “I have to pay Rs.10 daily to the municipal helper for the permission he gives me to pick up the waste from the AMC dust bin”. Finally at the end of the day she earns Rs.15-20 per day.

SEWA with Maeers’ Institute of Technology (MIT) Pune, designed two trolleys to overcome all their problems. Each for a specific type of waste picker. Trolley I – for the women who have to travel long distances with the heavy bags. Trolley II – for the women who use it to carry heavy bags through short distance. The trolleys are user friendly with 360 degree rotatable wheels, attachment hooks, horizontal strap and in addition to all these the trolley II is foldable such that it can be picked up when not loading waste. Now, she says, “I can now carry double the waste with more ease and comfort. And I earn double with no back ache”. Figure 1 shows how difficult it was for her to load the waste bag. Figure 2, 3 show the ease of work with the trolley I.

**Trolley I**

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Fig: 1" /></td>
<td><img src="image2.png" alt="Fig: 2" /></td>
</tr>
</tbody>
</table>
Figure 4 shows how difficult it was for her to pick up the waste material and to put it into the waste bag. Figure 5 shows how easily she pushes the trolley II and goes ahead.

**Trolley II:**

Before | After
---|---

Fig: 4 | Fig: 5

*Jasuben (sugarcane worker)*, 40 years, from Chapawadi village from Tapi district. She has been involved in sugarcane cutting since 20 years. She said, "When I come back home from the field my hands pain and I often have spells of giddiness while working. These six months are terrible for me when I am involved in the sugarcane cutting”.

SEWA collaborated with Maeers' Institute of Technology (MIT) Pune, and designed four samples of sugarcane cutters. These are found to be very useful. She is able to cut 3-4 sugarcanes at one shot. She has not experienced pain in hands since she has used the sugarcane cutter. She says, “This sugarcane cutter is lighter, sharper and has a good grip. I enjoy working with it”. Figure 6 shows how difficult bending is while cutting the sugarcane. Figure 7 shows the ease at work.

Before | After
---|---

Fig: 6 | Fig: 7
Rasilaben Darsibhai Kori Patel, agricultural worker, 45 yrs old. Stays in Khengadia village, Viramgam Taluka in Ahmedabad district. She has been working as an agricultural worker since 25 years. She is involved in sowing and harvesting of cotton, rice, wheat millets and pulses. She works for 7-8 hrs per day. She has to bend constantly while working. And has pain in back, hands and legs. There is risk of getting injured while harvesting the crops. She often suffers from skin allergy with itching in open parts of body. Her feet are in water for long hours during rice cultivation. Thus gets infections as well. She is scared of being bitten by snakes and scorpions. Figure 8 the sickle designed for agricultural workers.

SEWA bank designed a sickle for the agricultural workers to reduce their sufferings.

Fig: 8

Rajiben Parshottambhai Chawda, agricultural worker, 38 yrs old. Stays in Ghoda village, Viramgam Taluka in Ahmedabad district. She has been working as an agricultural worker since 25 years. She is involved in sowing and harvesting of cotton, rice, wheat millets and pulses. She cuts the wood for fuel. She performs this task almost daily for 2-3 hrs. While cutting the twigs for fuel her eyes get hurt and suffers from pain in hands and back.

When she used the wood cutter designed by Maeers' Institute of Technology (MIT) Pune, she could cut three times more amount of wood as fuel. Though it was not directly increase her income but was indirectly helping her to preserve her energy and time. She felt better in heath as well. Figure 9 shows the woodcutter used before and figure 8 shows the latter.

Before 

After

Fig: 9 

Fig: 10
Sushilaben Shankarlal Meghwal, **papad worker**, 42 years old lives in Bikaner city of Rajasthan. Her husband is a drunkard and works as a mason where he often loses his wages due to absentism. He met with an accident twice while at work, got badly injured and now cannot work much. Her financial situation is very bad. She is solely responsible for the family income. She works as a papad roller, works day and night. Her work involves rolling the papads and drying them. She rolls 800-900 papads each day for which she gets Rs. 100 only. While rolling the papads she sits in a slightly bent position. Due to this posture she constantly has pain in the back and abdomen. She has boils in her palms and the skin becomes very hard.

When she used the papad roller (belan) and the base (chakla) designed by Maeers’ Institute of Technology (MIT) Pune, she could work more efficiently and with no health problems. Figure 11 shows how difficult it is for her to stay in a bent posture while rolling the papads and Figure 12 shows the erect posture.

Before

![Fig: 11](image1.jpg)

After

![Fig: 12](image2.jpg)
For garment workers, SEWA with National Institute of Design (NID) designed a chair which resulted in reducing the health problems (pain in back, knee, swelling and numbness in feet and eye strain) of the garment workers and drastically increased their income. Keeping in view the ergonomic requirements. Figure 13 and 15 show the sitting stool with the pillow that she is providing her the base support. While Figure 14 shows the skeletal of the chair and figure 16 shows complete chair with the lady sitting in erect and correct posture.
For the embroidery workers, SEWA collaborated with Maeers' Institute of Technology (MIT) Pune, they designed two samples of embroidery frames (I and II) keeping in view the ergonomic requirements. This has resulted in reducing the health problems (pain in back, arm, finger and eye strain) of the embroidery workers. Figure 17 and 18 show the wrong ways of performing the embroidery work. While Figure 19 and 20 show the correct posture and user friendly flexible ring.
**For kite workers,** SEWA with National Institute of Design (NID) designed a table for kite workers keeping in view the ergonomic requirements, which resulted in reducing the health problems (pain in back, knee, neck and eye strain) of the kite workers. Figure 21 shows the haphazard way of doing work while making the kite. Figure 22 shows the correct posture and user friendly kite table.

![Before](image1.png) ![After](image2.png)

**Fig: 21**  **Fig: 22**

**For Tobacco workers,** SEWA has been working with National Institute for Occupational Health (NIOH) for creating awareness about the occupational hazards of nicotine in different processes of tobacco cultivation for the tobacco harvesters in Kheda district. SEWA has reproduced posters for the same. During the health education and awareness activities we suggested suitable gloves (2000 pair of gloves) among the tobacco harvesters for prevention of absorption of nicotine in different processes of tobacco cultivation.

**For Incense Makers / (Agarbatti) Workers,** SEWA has worked with the Innovation Center for Poor (ICP). Complete research and evaluation has been undertaken regarding the manufacture of the incense sticks. Over the time the workers have faced occupational hazards (like breathlessness, giddiness, headaches, pain in hands, knees, ankles and fingers,) that were taken care and ICP designed an Agarbatti Table for them. Four samples were made available to them.
Outputs:
The following table 2 shows the outputs obtained.

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Prototype</th>
<th>Average duration of use of prototype (Before)</th>
<th>Average Quantity of work done (Before)</th>
<th>Average duration of use of prototype (After)</th>
<th>Average Quantity of work done (After)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rag Picking</td>
<td>Trolley</td>
<td>9 hrs</td>
<td>30 kg of waste</td>
<td>9</td>
<td>60 kg of waste</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Sugarcane cutter</td>
<td>9 hrs</td>
<td>1000 kg</td>
<td>9 hrs</td>
<td>1555 kg</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Wood cutter</td>
<td>4 hrs</td>
<td>7 kg of twigs</td>
<td>4 hrs</td>
<td>15 kg of twigs</td>
</tr>
</tbody>
</table>

Table:2

Approach
As SEWA's approach is need-based and women-led, all the proposed activities will be implemented by the community health workers who are also members of SEWA (Union) and Lok Swasthya Mandali (SEWA's health cooperative). We believe that it is only through people’s participation and contributory approach also helps in sustaining the program. Further, SEWA also strives to provide integrated services to its members, thus this project will also be integrated into our ongoing organizing and social security activities.

Methodology:
1. Data Collection
2. Prototype Designing Development & Evaluation
3. Preventive Health Education through the communication tools and medical camps;
4. Advocacy
**Data Collection:**

We need to collect data on the number and distribution of workers in the chosen trade groups along with the various health and safety risks faced by them. This will be done in 2 ways:

**Primary Data Collection:** Primary data will be collected through focus group Discussions (FGDs) with the workers of the 3 trade groups selected for the study. These discussions can be supported by using other methods like a health check List, Photography, or questionnaires. The data collection will focus on their working environment primarily the place of work, their living condition, and availability of basic facilities like ventilation, light, toilets etc. at the work place, equipment for work, working hours, and postures at work, health and safety issues.

**Secondary Data Collection:** this will include collecting data about the number of workers working in 4 different selected trades, their distribution, and health & safety issues faced by them. This data will be collected through existing data sources like Vimo SEWA, SEWA Union, WIEGO, books and literature on the informal workers.

**Prototype Designing Development & Evaluation:**

This will be done in collaboration with National Institute of Design (NID), National institute of occupational health (NIOH) & Rural Technology Institute (RTI). The role of NID and RTI will be more in designing of the prototypes and providing knowledge about the existing prototypes, the role of NIOH will be more of evaluation of the prototype and providing technical inputs in designing and development of IEC material for imparting Occupational Health and Safety Education to the targeted workers groups.

**Preventive Health Education through the communication tools and medical camps:**

The IEC material developed will include:

- Posters on occupation-specific health problems faced by women and simple measures to address the same.
- Posters on yoga and exercises as a preventive measure:

This will also include the following activities:

- Education on primary health care (especially first aid) and occupational health.
- Diagnostic and treatment camps for ophthalmologic and reproductive health issues.
- Yoga and acupressure’s for back and the other joint problems.
- Providing micro insurance to the women workers and their families.
**Advocacy:**

The project has advocacy at its central focus and thus the same will continue throughout the project at various levels.

**Project Partners:** Table 1.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Partner</th>
<th>Role</th>
</tr>
</thead>
</table>
| 1       | National Institute of Design (NID), Pune | a. Need assessment  
b. Develop prototypes  
c. Field testing of prototype |
| 2       | MAEER’s MIT Institute of Design (MIT), Ahmedabad | a. Need assessment  
b. Develop prototypes  
c. Field testing of prototype |
| 3       | Rural Technology Institute (RTI) | Support by providing information about the already existing prototypes for the chosen worker groups and technical inputs |
| 4       | National Institute of occupational Health (NIOH) | a. Evaluation of the developed prototypes  
b. IEC material designing and development  
c. Training of Health trainers |
| 5       | Industry People and Health Professionals | Technical inputs and Advocacy |

**Major Activities:**

The 6 main activities of the project were:

(I) Needs assessment with NID (National Institute of Design, Ahmedabad for kite workers and ready-made garment workers) and MIT (Pune for readymade garment workers, kite workers, Rag Pickers, Embroidery Workers, Papad Workers and Agricultural Workers.)

(II) Designing prototypes for the target groups, with NID and MIT.

(III) Field testing of prototypes with NID and MIT.

(IV) Making the prototypes available to the women workers.

(V) Training health educators on occupational health issues, prevention and safety measures.
Preventive health education through the communication tools developed and creating referral linkages through the medical camps

**Health education and health services**

Health education, already a core LSST activity, was conducted through group educations sessions and individual home visits. As noted earlier, the content of the sessions was derived from the needs assessments and previous interactions with medical experts and NIOH. The print materials developed – flip charts and posters – are commendable for their easy to understand images and realistic suggestions. Health education efforts are typically troubled by overly comprehensive messaging not appropriate for semi-literate populations, a didactic tone and unrealistic suggestions. However, LSST’s longstanding grassroots experience is reflected in the design of these materials. They include basic do’s and don’ts such as to rest, put cold water on tired eyes and to stretch at regular intervals, tailored to each occupation. Further, the focus on simple yoga exercises for relief and prevention of neck and back ailments is do-able. Interviews with women indicated that while they do stretch and rest while working, the new exercises they’ve learned were specific to their pain and potential injuries. The posters on Chair and Kite Table are attached with the document.

Close to 2/3 (63.2 percent) of women who have purchased the chair had received SEWA health education on occupational health. Although this represents a small proportion of all women who receive health education, the project team is confident that more women will contribute to chair costs with one-to-one, rather than group, education sessions. Half of those who purchased the chair are already VimoSEWA (SEWA Insurance) members, indicating that they trust the organization. Individual education sessions should further extend outreach of the insurance product (or vice versa) amongst potential buyers.

Health services, particularly eye camps for occupational health-related injuries, reached over 8,000 women and their families. These services, though not necessarily linked to distribution of the prototype, certainly help protect women from occupational risk and increase their trust in LSST’s services. The large outreach over a short period of time is testament to the organization’s strength in organizing women. The next challenge, of which this project played a critical part, will be to convert provision of services into
opportunities to promote occupational health education and improvement in working conditions.

**Challenges:**

1. Field Testing
2. Acceptance of new equipment
   a. Economic loss
   b. Work habit
3. Finalization of prototype
4. Other Constrains
   a. Time - Availability of workers during day
   b. Seasonal
   c. Festival time

**Way forward:**

- Strengthen the linkages with technical and research institutions for newer and acceptable prototypes.
- Sensitize health personnals, workers and government officials to recognize and act on OH.
- Ensure that OH is included as a primary health service.
- Ensure that OH is included in the current national discussions and debate on universal health coverage.
- Revolutionize the concept of OH among the workers welfare boards especially providing safe & low cost equipments to the women of informal sector.
- Ensure that all workers have access to social protection.
- Organize dissemination workshops with the workers, employers and government officials (especially labor and health) at national and international level.

**Our final goal** is to improve the occupational health of the women workers in the informal sector. Explore how to develop OHS in a way that can better meet the needs of informal workers.