Reusability and Sustainable Fabrication
by Hadwa Omran
Introduction

- Waste Management in Cairo
- Research
- Material Selection
- Processing
- Concept
- Future Development
Waste Management

Cairo’s Daily Garbage

Domestic + Commercial Waste 80%

Industrial Waste 5%
Zabbaleen community handles 50% of the city’s waste
Zabbaleen collect items for recycling or reselling.
We collect from anywhere and we sell our collectables in PortSaid street, Kilo 50 & El-Waili street. We sell recyclables ➔ small traders ➔ larger traders ➔ manufacturers

Mustafa

We collect anything we can find of value & weight. We do not collect paper & plastic, they take too much space & are cheap material. However, we might take newspapers 1 kg=٥٠ EGP

Ahmed
Plastic Recycling Sector (2009)

- 65% wasted
- 30% reused
- 5% recycled
Material

Plastic Bags effects on the environment
Craft of weaving on handloom has been popular since the ancient times
Handloom

Limitations of craft

- **Raw materials**
- **Market Demand**
Combining the authenticity of craft with the reusability of discarded material to elevate production through a sustainable approach.
Preprocessing Stage: Technique of cutting a plastic bag by scissors
Preprocessing Stage: Spinning plastic threads around bamboo tubes
Initial experimentation with small handloom model
Process
Sustainable fabric developed
Laboratory test results

<table>
<thead>
<tr>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Tensile Strength/Kg</td>
<td>58</td>
</tr>
<tr>
<td>Average Elongation %</td>
<td>200&lt;</td>
</tr>
<tr>
<td>Water Absorption Rate %</td>
<td>12</td>
</tr>
<tr>
<td>Shrinkage Rate</td>
<td>0</td>
</tr>
<tr>
<td>Average Tensile Strength Knitting/Kg</td>
<td>42 (Cutting the Fabric)</td>
</tr>
<tr>
<td>Average Power Hack/Kg</td>
<td>25</td>
</tr>
<tr>
<td>Effect of Heat on the Sample (at 50 ºC)</td>
<td>Not Affected</td>
</tr>
</tbody>
</table>
Development of design prototypes
Conclusion

- Sustainable Fabrication
- Contribution to society & environment
- Future Development
Thank you

Any questions?