ENERGY TO REDUCE ENVIRONMENTAL IMPACT
GLOBAL TEXTILE IMPACT

80 Billions of garments / year

ENVIRONMENT

20% Of water pollution

10% Of greenhouse gas emission

5.2% Of waste on landfill – 1 truck per second

+ 23% Consumption of chemicals
SUSTAINABILITY PLAN 2020

DEVELOPED AT 2013 LAUNCHED IN 2015

PUBLIC COMMITMENT

FUTURE VISION

MAINTAIN PIONEERISM

RISK AND OPPORTUNITY ANALYSIS

SMART GOALS
SUSTAINABILITY PLAN 2020

TEXTILE PROCESS

15% LESS ENERGY BY GARMENT PRODUCED
20% LESS GREENHOUSE GAS EMISSION (SCOPE 1 AND 2 GHG PROTOCOL)
40% LESS WASTE BY GARMENT PRODUCED
40% LESS WATER BY GARMENT PRODUCED
FIELD OF ACTION AND IMPACT OF GOALS

34 MILLION OF APPAREL/YEAR

100% BRAZILIAN MARKET | 96% BRAZILIAN PRODUCTION | 4% ASIA PRODUCTION
FIELD OF ACTION AND IMPACT OF GOALS

RENEWABLE ELECTRICITY SOURCE
(2018)

- World: 26%
- Brazil: 83%
- Malwee Group: 86%

RENEWABLE PRIMARY ENERGY SOURCE
(2018)

- World: 25%
- Brazil: 45%
- Malwee Group: 85%
15% LESS ELECTRICITY BY GARMENT PRODUCED

**ELECTRICITY CONSUMPTION VARIATION BY GARMENT BY YEAR**

<table>
<thead>
<tr>
<th>Year</th>
<th>2014 (BASELINE)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>0%</td>
<td>10%</td>
<td>-8%</td>
<td>-9%</td>
<td>3%</td>
</tr>
</tbody>
</table>

**MALWEE GROUP’S ELECTRICITY DEMAND BY YEAR**

<table>
<thead>
<tr>
<th>Year</th>
<th>2014 (BASELINE)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>-12.6%</td>
<td>-32%</td>
<td>-34%</td>
<td>-36%</td>
<td></td>
</tr>
</tbody>
</table>
## Initiatives and Projects to Achieve This Goal

<table>
<thead>
<tr>
<th>Efficiency Initiatives</th>
<th>Energy Saving (Mwh/year)</th>
<th>Status</th>
<th>Payback (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substitution of conventional light to Light Emitting Diode (LED) 120 MWh</td>
<td>120</td>
<td>Concluded 2019</td>
<td>5</td>
</tr>
<tr>
<td>Replacement of non-efficient electric motors (50/197)</td>
<td>417</td>
<td>In process</td>
<td>3-15</td>
</tr>
<tr>
<td>Improvement of water chillers</td>
<td>517</td>
<td>Planned 2020</td>
<td>3.9</td>
</tr>
<tr>
<td>Centralized compressed-air system</td>
<td>580</td>
<td>Planned 2020</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total: 6% of Consumption Reduction**

### Source Replace Initiatives

- **Solar Energy systems for the sewing facility in Brazilian northwest**
  - Planned 2020
- **100% Renewable electricity supply for the knitting facility**
  - Concluded
20% LESS GREENHOUSE GAS EMISSION
(Scope 1 and 2 GHG Protocol)

GREENHOUSE GAS EMISSION

MALWEE: ENERGY X TONSCO2
INITIATIVES AND PROJECTS TO ACHIEVE THIS GOAL

REPLACE THERMAL FLUID HEATING AND STEAM BOILER FROM NATURAL GAS TO BIOMASS

INVESTMENT: U$ 1.7 MILLION

- IMPROVING EFFICIENCY
  Biomass Dryer Installation
  (Biomass average humidity 52%)
  ENERGY SOURCE: heat recovered from the boiler and heater emission

RESULT:
- 40 - 50% Increasing the combustion efficiency
- 10% biomass consumption reduction
  Payback – 6 months

- RENEWABLE ENERGY CONSUMPTION:
  Increase the number of equipment with biomass as fuel instead of natural gas:
  - Finishing equipment
  - Knitted fabric dryer
40% LESS WASTE BY GARMENT PRODUCED

WASTE GENERATION REDUCTION

INITIATIVES AND PROJECTS TO ACHIEVE THIS GOAL

INVESTMENT: Effluent Sludge Dryer

CHALLENGE: Dry the sludge without spending more energy

SOLUTION: Use the energy recovered from boiler and heater emissions.

NEXT STEP: Apply the dry sludge to achieve zero industrial waste at landfill
40% LESS WATER BY GARMENT PRODUCED

**WATER CONSUMPTION PER GARMENT**

<table>
<thead>
<tr>
<th>Year</th>
<th>2014 (BASELINE)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>0%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>13%</td>
</tr>
</tbody>
</table>

**TOTAL WATER RESOURCE CONSUMED**

<table>
<thead>
<tr>
<th>Year</th>
<th>2014 (BASELINE)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>-10%</td>
<td>-24%</td>
<td>-34%</td>
<td>-22%</td>
<td></td>
</tr>
</tbody>
</table>
INITIATIVES AND PROJECTS TO REDUCE ENVIRONMENTAL IMPACT

REDUCE CONSUMPTION WITHOUT IMPACTING THE PRODUCT QUALITY

BARRIER:
- Technology access to reduce the consumption
- Trends make the efficiency gains not continuous

SOLUTION:
- Invest in effluent treatment, improving color reduction without chemicals, making possible to increase water reuse
  Technology: Ozone System

CONSEQUENCE:
Increase energy consumption
- SOLUTION: Solar Energy
- PAYBACK: more than 10 years
INITIATIVES AND PROJECTS TO ACHIEVE THIS GOAL

TECNOLOGY: LAUNDRY 5.0

BENEFITS AND GAINS:
98% less water
89% less chemicals
80% less impact on worker health

BARRIER:
100% energy consumption growth*

SOLUTION
Solar energy system

GREENHOUSE GAS EMISSION*

*+25% SIN
*58% SOLAR

* LCA (Life Cycle Assessment) methodology calculation
CONCLUSIONS

- Reduction of consumption is always the best solution
- If it is not possible to reduce, renewable energy and reuse of raw material are good replacement options
- Costs and payback are challenges
- In Brazil, renewable electricity needs to be more financially attractive
- Government offers allowance to renewable energy consumption, but the transmission and other additional costs are barriers
- To compensate the long term projects, payback Brazil has some funding to encourage the companies investment
- Greenhouse gas emission, must be considered in all projects to reduce any possible growth of this impact
#TakeThisPen

NEW CHALLENGES

1° BRAZILIAN FASHION COMPANY THAT HAS SIGNED BUSINESS AMBITION 1.5°C

CHALLENGES:

- Calculate the indirect impact
- Establish Greenhouse gas emission, decreasing target considering the chain
- Value Chain engagement
THANK YOU!

✉️ taise.b@malwee.com.br
📞 +55 47 999731421

linkedin.com/in/lilian-taise-beduschi