Plastic Bag Rejuvenator

Green Team B
Customer

• International Institute for Justice and Development

• Volontaire-Globalisation

• “Simple” Request - To get rid of plastic bag pollution in Lome, Togo!

• Bag bans/levies in Rwanda, Eritrea, Kenya, Tanzania, Uganda, Zanzibar, Botswana, South Africa - however shop keepers depend on bags

• Paper bags unaffordable - 5x cost of plastic

• Unsuccessful attempts to curb usage - culture
Benchmarking

- No recycling service in Lomé currently
- Unskilled monthly wage = $32/month
Testing

- **Parameters:**
  - Temperature
  - Pressure
  - Feed rate
  - Bag material (HDPE vs. LDPE)
  - Number of layers
  - Polymer chain alignment
Additional Challenges

• Fusing Machine
  – Determine optimal temperature/pressure/feed rate settings
  – Include Controls
    • Pressure, temperature, feed
  – Longer feed sheets

• Preprocessing
  – Cutting machine

• Postprocessing
  – End product research: what would optimize value for Togolese end-users?
  – IIJD suggestions: thick plywood-like sheets for furniture, buckets, flip-flops, rope