INTRODUCTION

Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health. It has never been achieved by a modern state. This poster assesses information on technical obstacles to achieving zero waste. Paper and plastic waste streams, significant contributors to our solid waste management problems, are examined from this perspective.

RECYCLING

Recycling of different waste streams varies among different communities. Below individual streams have been selected from different communities and it can be observed how much waste remains even after recycling.

ROADBLOCKS

<table>
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<th>Percentage of recycled waste</th>
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<td>85</td>
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Table -1: Sulphite pulp properties [1] [2] (Breaking length here is associated with webbing strength)

Table -2: Experimental values at reduced feed rate for polymer separation from waste stream by NIR sensors [5]

LIMITATIONS IN PLASTIC RECYCLING

- Closed-Loop recycling needs pure polymer streams.
- Contaminants can destabilize the polymer and cause degradation of polymer properties such as elasticity and impact strength during reprocessing.
- Due to the wide range of polymer present in the waste stream it is difficult to control the effect of contaminant polymer effect on main polymer which is being reprocessed.
- Also at different extrusion temperatures the properties change. Which creates complexity when controlling the properties of the polymer composite as the waste stream has a number of polymers.

LIMITATIONS IN PAPER RECYCLING

- Low quality feed and aged paper waste deteriorates the quality of paper produced.
- Repeated recycling causes loss in tensile strength.
- Enzyme treatment done to improve fiber quality must be monitored closely as wrong loading of enzyme may also cause change in tensile strength.
- Paper waste also includes impurities such as fillers inks adhesives etc. which during recycling form stickies which decreases the web strength and paper brightness.

REFERENCES

5. Stuart Foster, An assessment of technical, environmental and economic viability of recycling domestic mixed plastics packaging waste in UK, WARP, 2008