

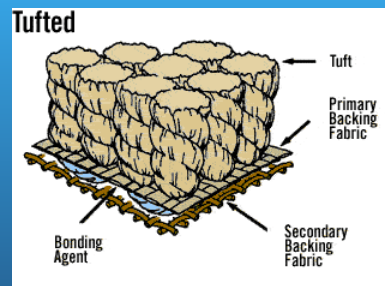
Waste Carpet Opportunities in Nova Scotia?

Presented by Caroline Morissette

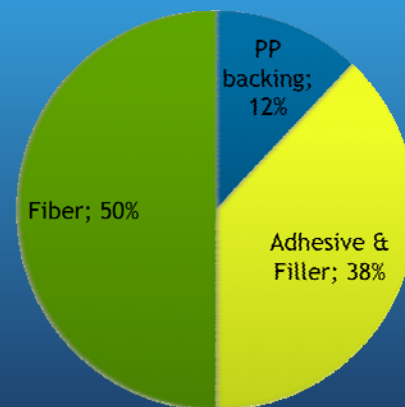
Research and Development Project Presented to
the Resource Recovery Fund Board

Master of Resource and Environmental Management Project Report
Dalhousie University

Construction/Composition/Durability



(CRI, 2010)



(CRI, n.d.)

Why recover and recycle carpet?

- RRFB
 - Mission & mandate
- Province
 - EGSPA and solid waste target
- Entrepreneur
 - New opportunities
- Current Interest
 - CARE/CCRE, Bill 2398/ Ontario legislation

Objectives

1. What can be done with carpet?
1. Decision framework for three recovery and recycling options
1. Critical data/information gaps

Objective 1: What can be done with carpet?

- Collection and Sorting



(Cassell, 2010)

Objective 1: What can be done with carpet?

- Baling and shipping



(Cassell, 2010)

Objective 1: What can be done with carpet?

- Reuse
- Refurbishment



(Milliken, 2005)



(Connelly, 2006)

- Wool as fertilizer

Objective #1 What can be done with carpet?

- Chemical Recycling



Shaw Evergreen
Nylon Recycling
Plant, Georgia
(DeLozier, 2006)

Objective #1

What can be done with carpet?

- Mechanical Dry (latex backing)
- Mechanical Dry/Wet (latex backing)
- Mechanical Dry (carpet tile)



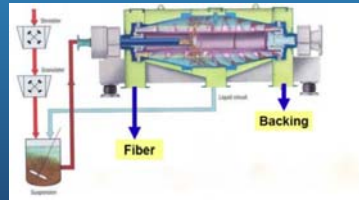
(Tandus, n.d.)



(Tandus, n.d.)



Extruder



(Strzelecki, 2006)

Objective #1

What can be done with carpet?

- Mechanical - skiving or shearing



(Ragiel, 2010)

Objective #1

What can be done with carpet?

- Fuel for cement plants
- Carpet as alternate fuel
- Waste to Energy



(Lafarge, 2007)



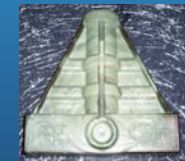
(Shaw, 2008)

Objective #1

What can be done with carpet?

- Alternate products

(Jain et al., 2010)



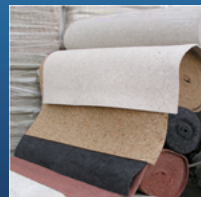
(Jain et al., 2010)



(GeoHay, 2010)



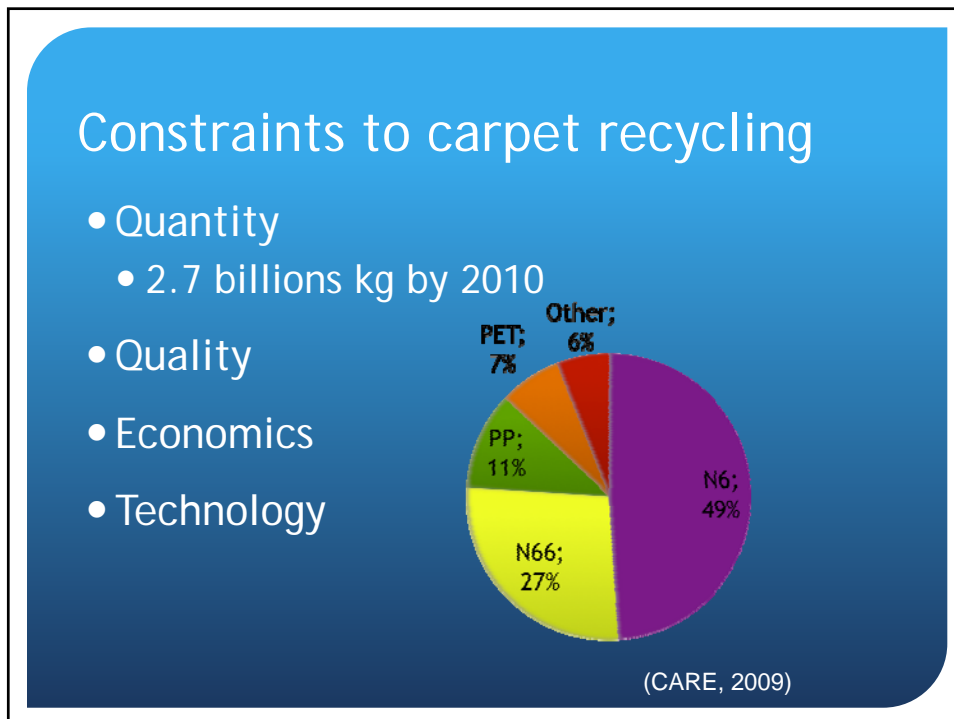
(CARE, 2006)



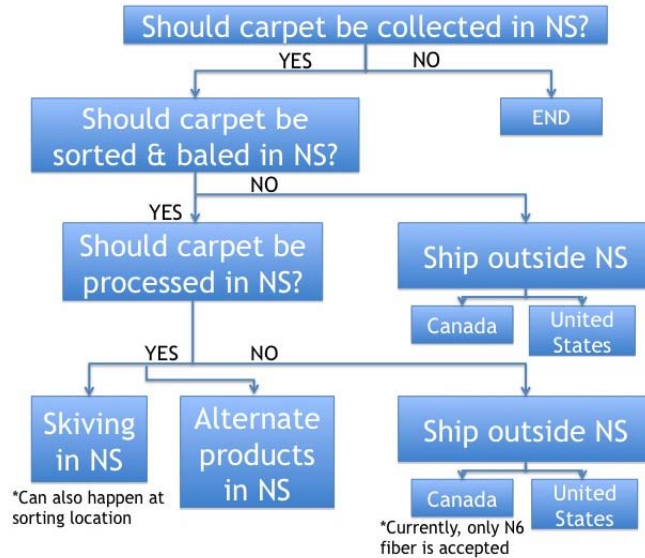
(CARE, 2006)



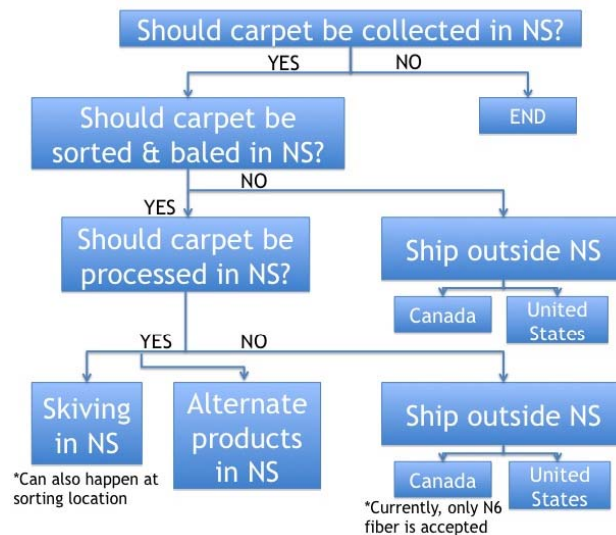
(CARE, 2006)



Objective 2: Decision framework



Objective 3: Critical data and information gaps



Objective 3: Critical data and information gaps

- Quantity
 - HRM studies
 - <4 - 4.2 %
 - 8-9 kg/person

Year	Region	Total carpet waste	Total carpet waste / person
2003/2004	HRM	2,748.291 tons or 2,748,291 kg	0.007653 ton or 7.7 kg
	NS	6,870.725 tons or 6,870,725 kg	---
2008/2009	HRM	3,244.155 tons or 3,244,155 kg	0.008705 ton or 8.7 kg
	NS	7,912.573 tons or 7,912,573 kg	---

Objective 3: Critical data and information gaps

- Quality
 - No Canadian data
 - Condition (Wet vs. Dry)
 - Commercial vs. Residential

Objective 3: Critical data and information gaps

- Economics
 - Cheaper than solid waste
 - Cheaper than virgin material
 - Market outlets
- Law & regulation
 - Landfill ban?
 - Border crossing?

Conclusion

- Data and information on waste carpet in Nova Scotia and Canada is very limited
- Based on limited information, some aspects of carpet recovery and recycling may be possible
- Nova Scotia could increase its carpet waste inventory with near by provinces

Recommendations

1. Landfill facilities should complete waste audits to quantify the carpet waste and the types of carpet in Nova Scotia
2. Evaluate if using already existing facilities for carpet baling is feasible
3. Join the carpet recycling network and create relationships
4. Evaluate if manufacturers would adopt a stewardship program and determine a reasonable stewardship fee
5. Develop carpet regulations consistent with leading jurisdictions
6. Encourages research and development projects to assess feasibility of alternate products

Thank you !

Network of resources

- Carpet & Rug Institute (USA) 1945
- Canadian Carpet Institute (Canada) 1963
- Georgia Institute of Technology (USA) 1990
- Annual Carpet Conference (USA) 1996
- Carpet American Recovery Effort (USA) 2002
- Annual Entrepreneur Conferences (USA) 2004
- Canadian Carpet Recovery Effort (Canada) 2010