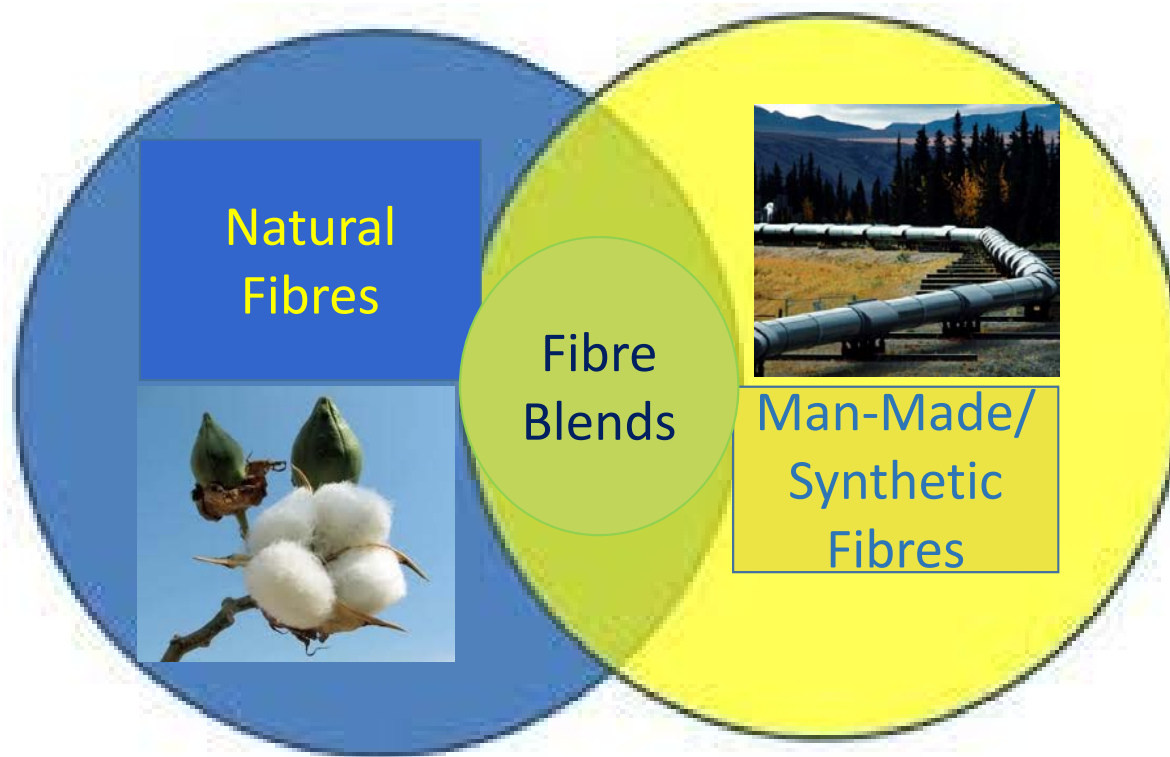




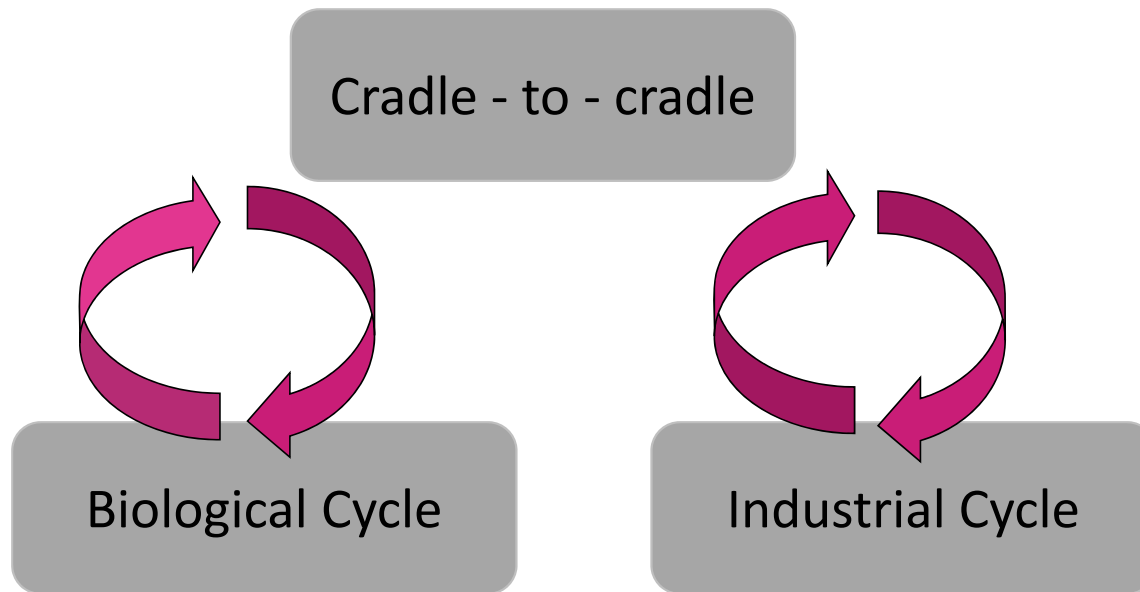
May 2017

Sustainable Strategies & Solutions  
*Textiles A Challenge For The Circular Economy*

# Textiles are Made of Fibres



# Cradle-to-Cradle



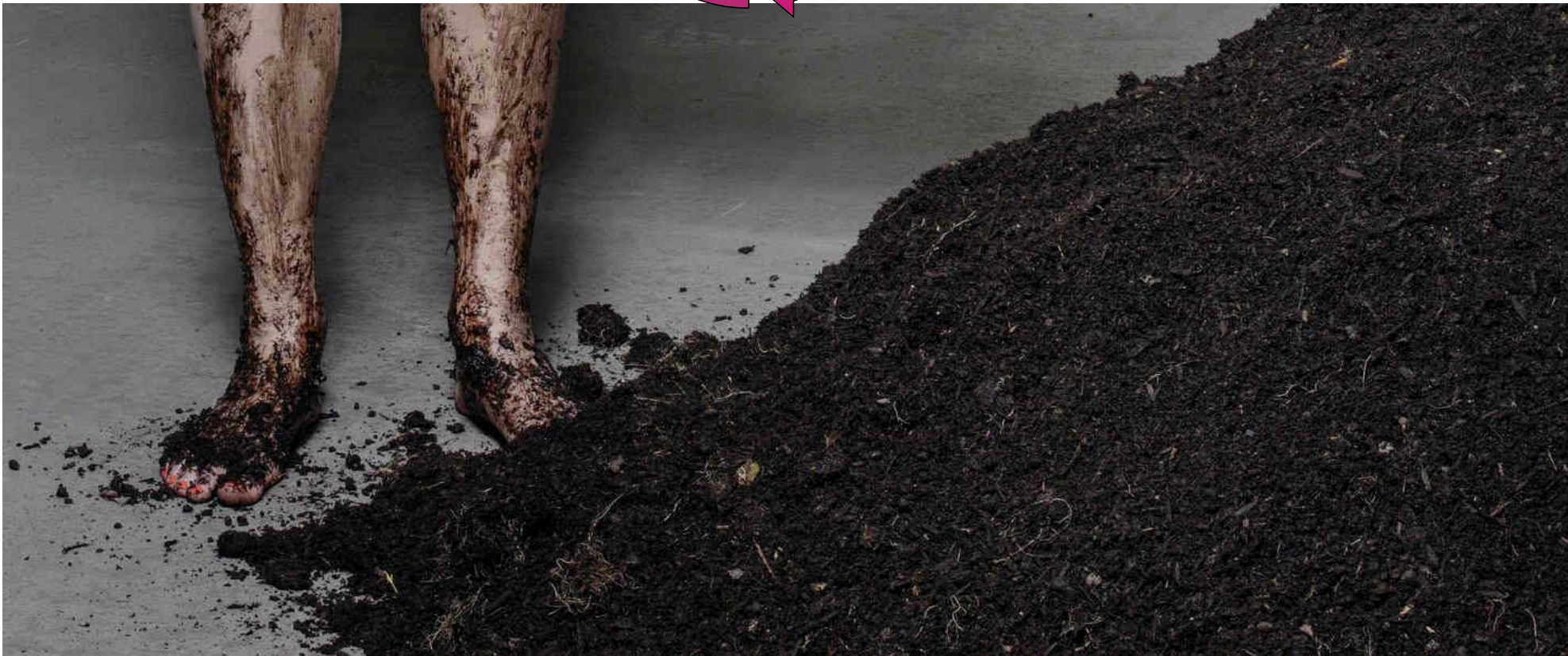
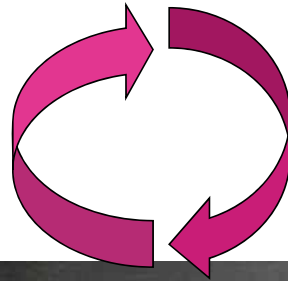
William McDonough



Michael  
Braungart

- **Biological cycle: Products return harmlessly to nature through decomposition**
- **Industrial cycle: Non-degradable products are recycled continuously**

# Biological Cycle

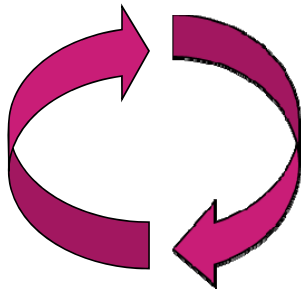




# FREITAG



# Industrial Cycle



IN SELECTED STORES AND  
ONLINE FROM APRIL 10TH

## H&M CONSCIOUS EXCLUSIVE More sustainable fashion

Supermodel Amber Valletta and sustainability think tank Ever Manifesto present exquisite fashion full of bohemian flair and flamenco-inspired glamour.





# H&M – How Does It Work?

Canada



English  
English (CAD / LB)  
French

9.227 EUR  
461.331 KG

(Updated 2017-05-05)

**H&M**  
SOUTIENT  
L'ACTION  
**unicef** 

<http://hm.charitystar.com/en/home/>

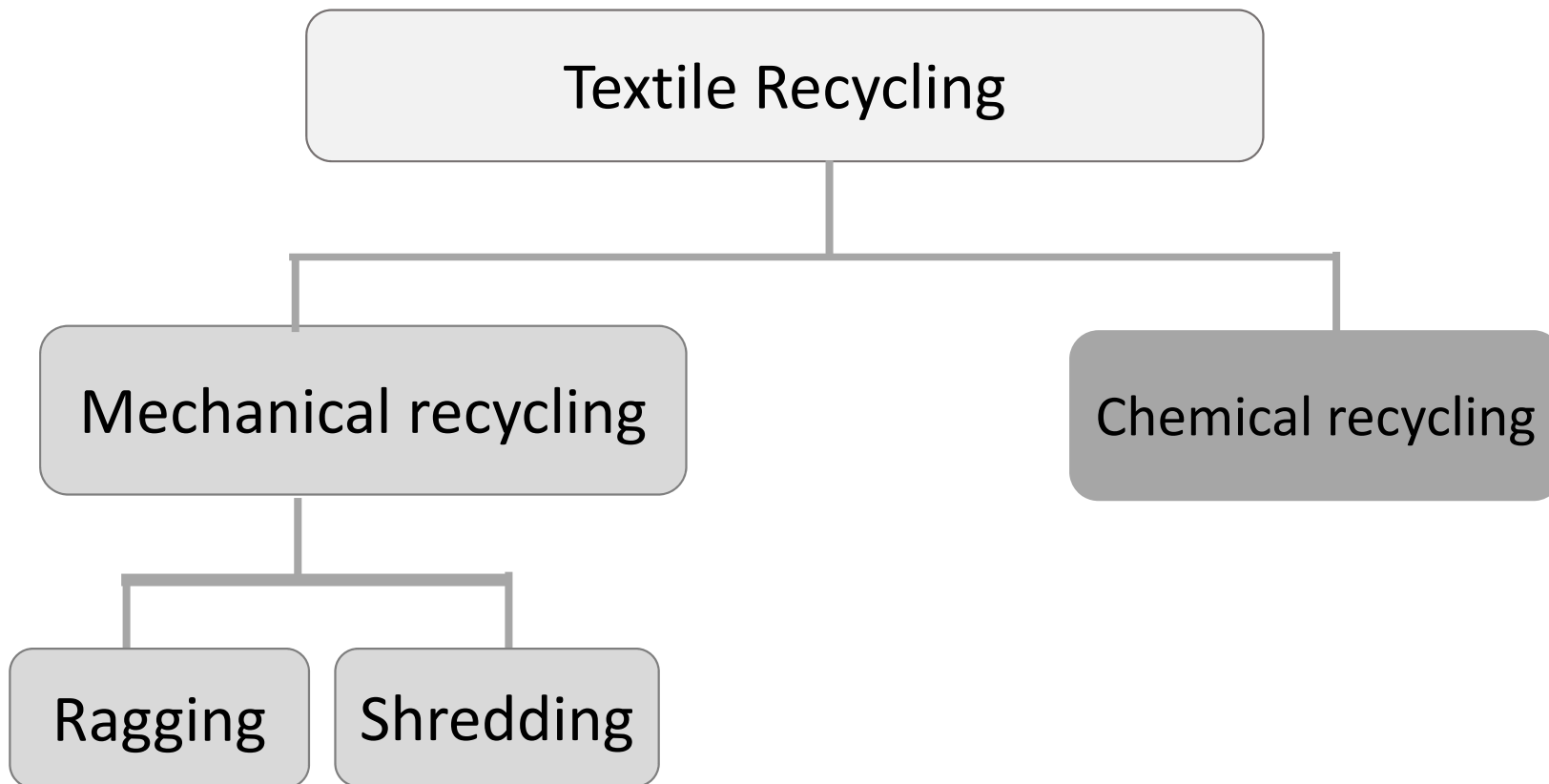


# Take Back Programs





How Close or Far are we away from a Circular Economy?



# Ragging



# Shredding

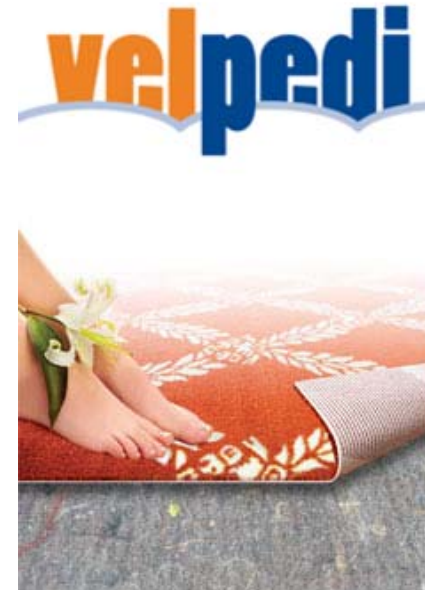




# Jasztex (Montreal)

"JASZTEX was founded twenty-five years ago and has distinguished itself in the nonwoven fabrics industry for its constant innovation, dynamism and excellent customer service."

**BLUE**  
**Jeanyons**  
**INSULATION**



# IRIS INDUSTRIES

BONDED LOGIC DENIM  
FIBER MATERIAL

**IRIS** INDUSTRIES



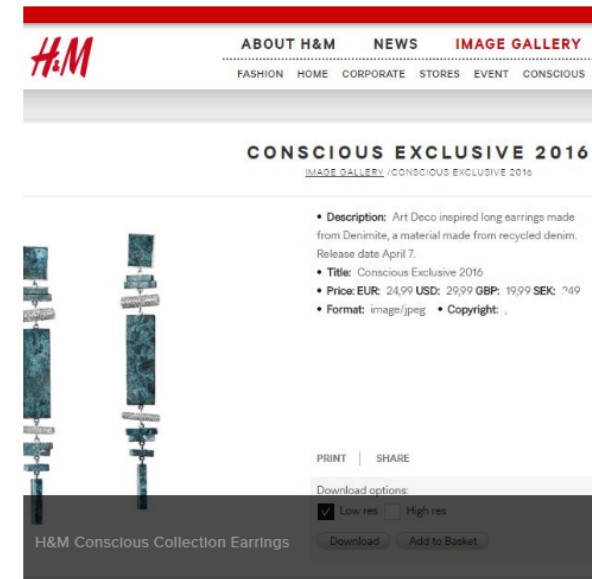
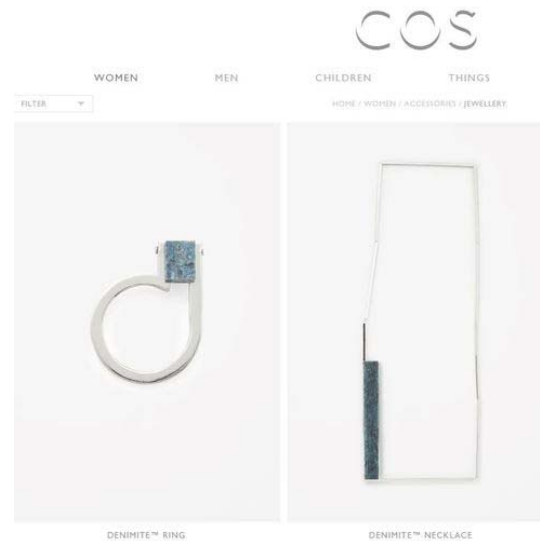


2013



**SHEAR**  
COMPOSITES

Please see our new site at [www.shearcomposites.com](http://www.shearcomposites.com)



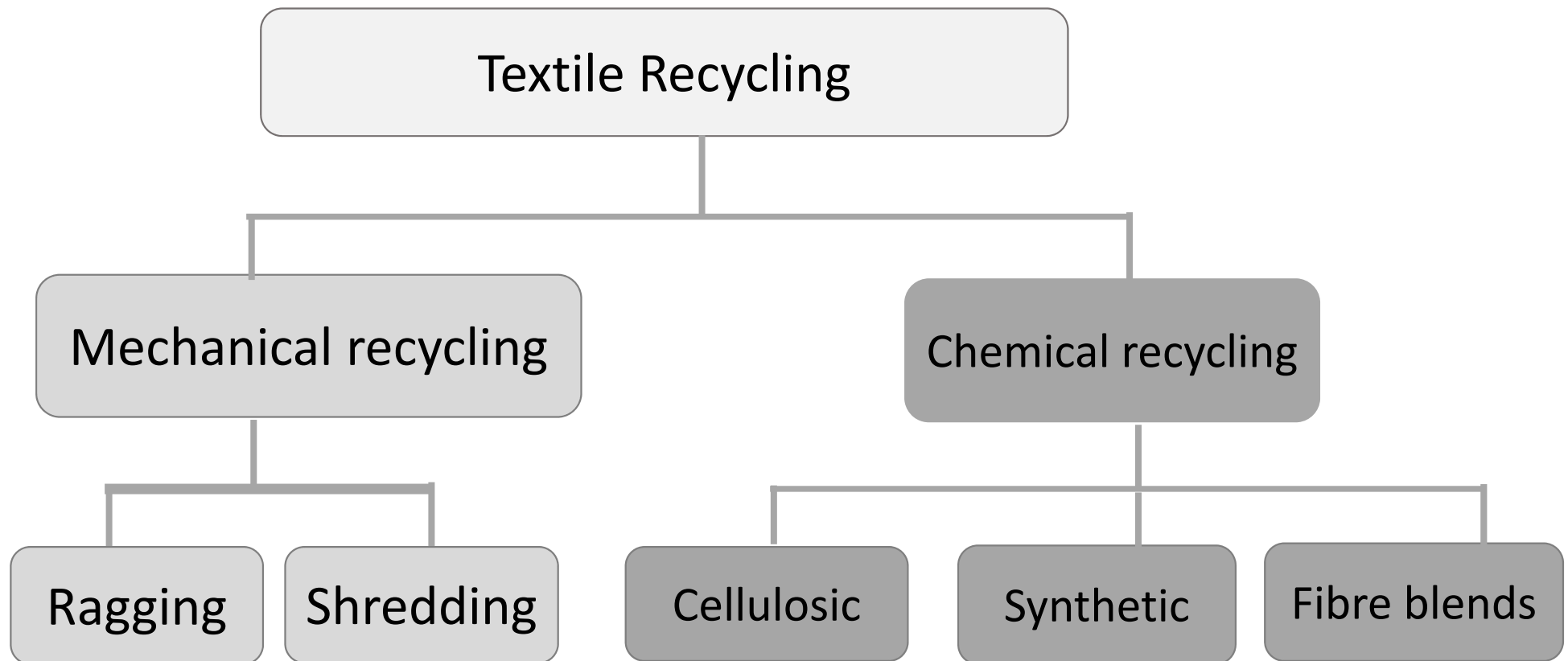


## Jessica Schreiber, Fab Scrap

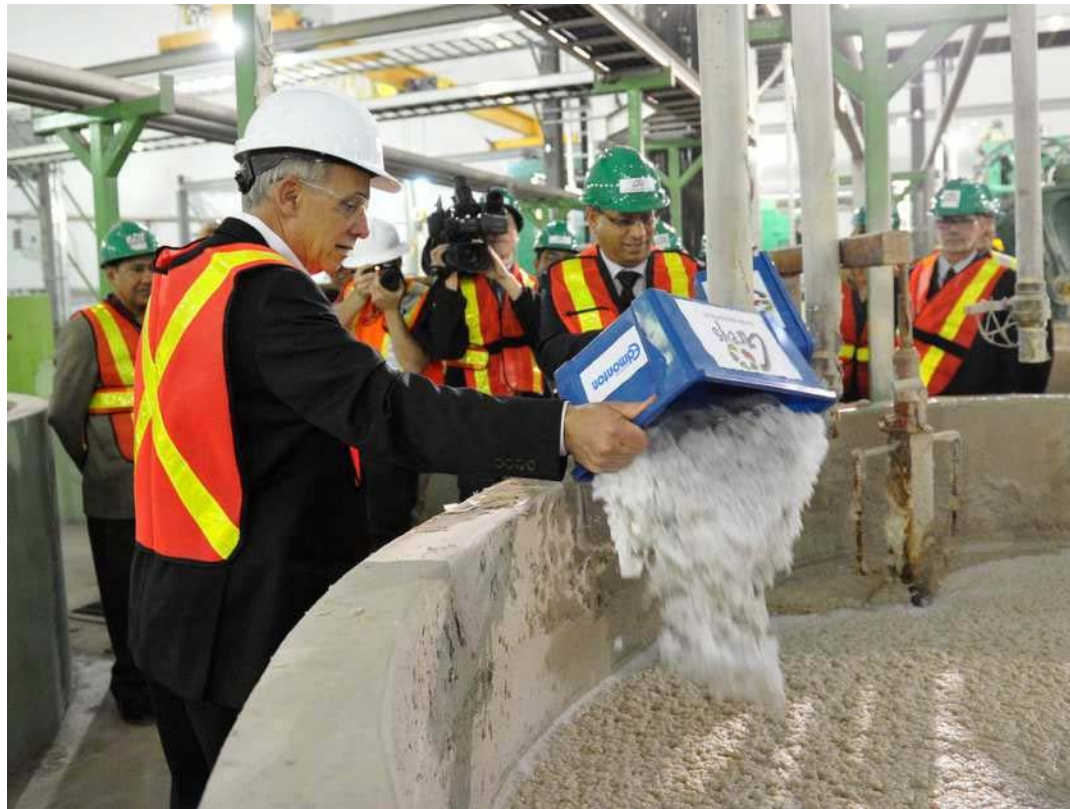


Pre-consumer textile waste from 1,483+ manufacturing facilities

# Chemical Recycling



# Cellulosic Recycling: Greys Paper Recycling Industries Ltd.



Edmonton Mayor Stephen Mandel dumps some shredded cotton in a vat of pulp at the Greys Paper Recycling Industries Ltd. facility in Edmonton on May 16, 2013.

## EDMONTON JOURNAL EDITORIAL BOARD February 23, 2016:

There are a handful of ways Edmontonians could react to news their municipal government sunk \$9.4-million over the last six years into a recycling business that just filed for bankruptcy.



# Synthetic Recycling: Victor Innovatex's (Quebec)

Eco Intelligent Polyester (EIP),

- is produced with 80% less greenhouse gas emissions, by lowering humidity pressure, improving heating efficiencies, and implementing clean technologies -
- they claim to be the first antimony-free polyester that maintains its quality when recycled



# Synthetic Recycling: Unifi

- “ Repreve is one of the most certified, earth-friendly fibers available in the world. High-quality, recycled polyester yarns are made of 100% recycled polyester materials, **including post-consumer plastic bottles, pre-consumer industrial waste, or a hybrid blend of both**”



# Garments





# Fibre blends: Investment in Research and Technology

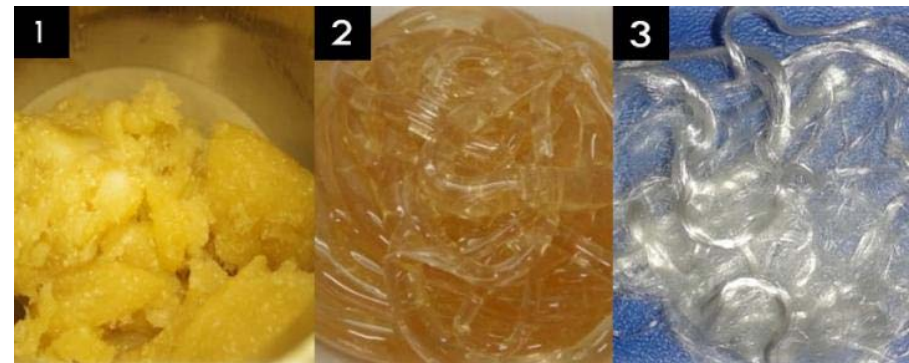
- The H&M Foundation partnered with The Hong Kong Research Institute of Textiles and Apparel (HKRITA),
- H&M committed \$5.8 million to develop the technology to recycle blended textiles into fabrics fit for new clothing.
- Fibers like cotton-poly are currently un-recyclable into wearable new material



[How H&M is Trying to Balance Fast Fashion with Revolutionary Recycling](#)  
POSTED ON [DECEMBER 31, 2016](#) UPDATED ON [DECEMBER 29, 2016](#)

# Fibre Blends: Recycling Cotton Polyester Clothes

- Biorefineries research group at Aalto University, has already success recovering polyester and spun it back back into usable fibers
- The biggest hurdle is not the chemical know-how. **"We can handle the science, but we might not know what dye was used, for example, because it's not labeled "**
- (1) DISSOLVE THE BLENDED MATERIALS,
- (2) SEPARATE THE CELLULOSE AND
- (3) SPIN NEW LYOCELL-LIKE



[https://www.eurekalert.org/pub\\_releases/2017-04/acs-uf030717.php](https://www.eurekalert.org/pub_releases/2017-04/acs-uf030717.php)

Do we Need to Recycle  
Textiles?





# Global Trends

- population growth,
  - increased global fibre consumption,
  - a finite cotton supply,
  - greater focus on sustainability issues



These trends contribute to a global fibre gap.  
Companies need to explore renewable options.

Reclaimed fibres will be increasingly important for the supply  
of industrial raw materials for the textile industry.

# How Much Textiles Require Recycling?

## Where can We Find Textiles?

- Retail Council Canada is working with Scout Environmental on an inventory of textile products marketed in Canada by their retail members.



# Textiles



## Textile Industry

- Fabrics
- Home Textiles

## Apparel Industry Furniture Industry

## Distribution Channels



Post consumer  
textiles,



IC & I Sector

material loss

material loss

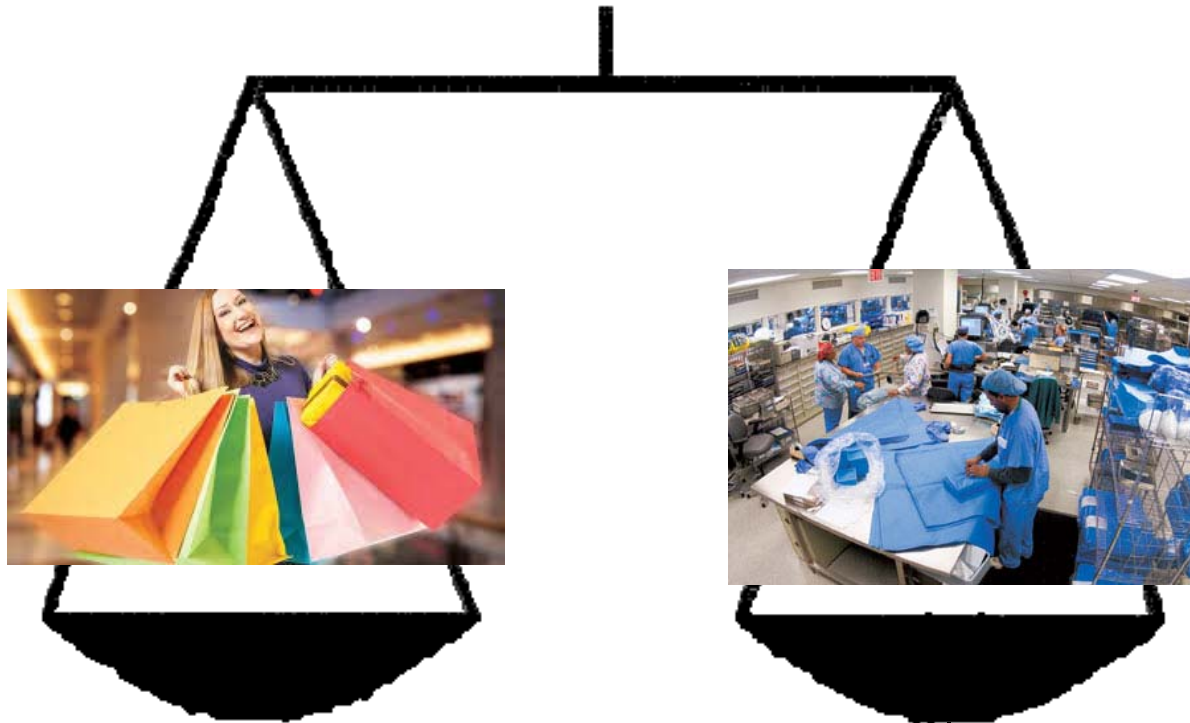
material loss

material loss

material loss



# The Residential and The IC & I Waste Stream



United States Environmental Protection Agency (EPA) in the US ([2013](#)), 5.2 percent of textile waste in US landfills. Resource Recovery Fund Board (RRFB) in 2012 in Nova Scotia, where textile waste accounted for 10/11 percent of the waste stream ([Jensen, 2012](#)).

# The Issue

## Postconsumer – Textile Waste

### IC & I Sector – Textile Waste



# De Brand (Delta, BC)

Home

Services

About

Contact

*de•brand*

**Secure and Responsible recycling**

Business to business solutions for end-of-life product management

Proudly Trusted by:

Aritzia



TELUS



ARC'TERYX



VISA

LONDON  
DRUGS



bcl

Columbia

ANA Inspiration of JAPAN  
A STAR ALLIANCE MEMBER

MEC

Coast Mountain  
Bus Company

PAVCo

COMMISSIONAIRES  
TRUSTED • EVERYDAY • EVERYWHERE

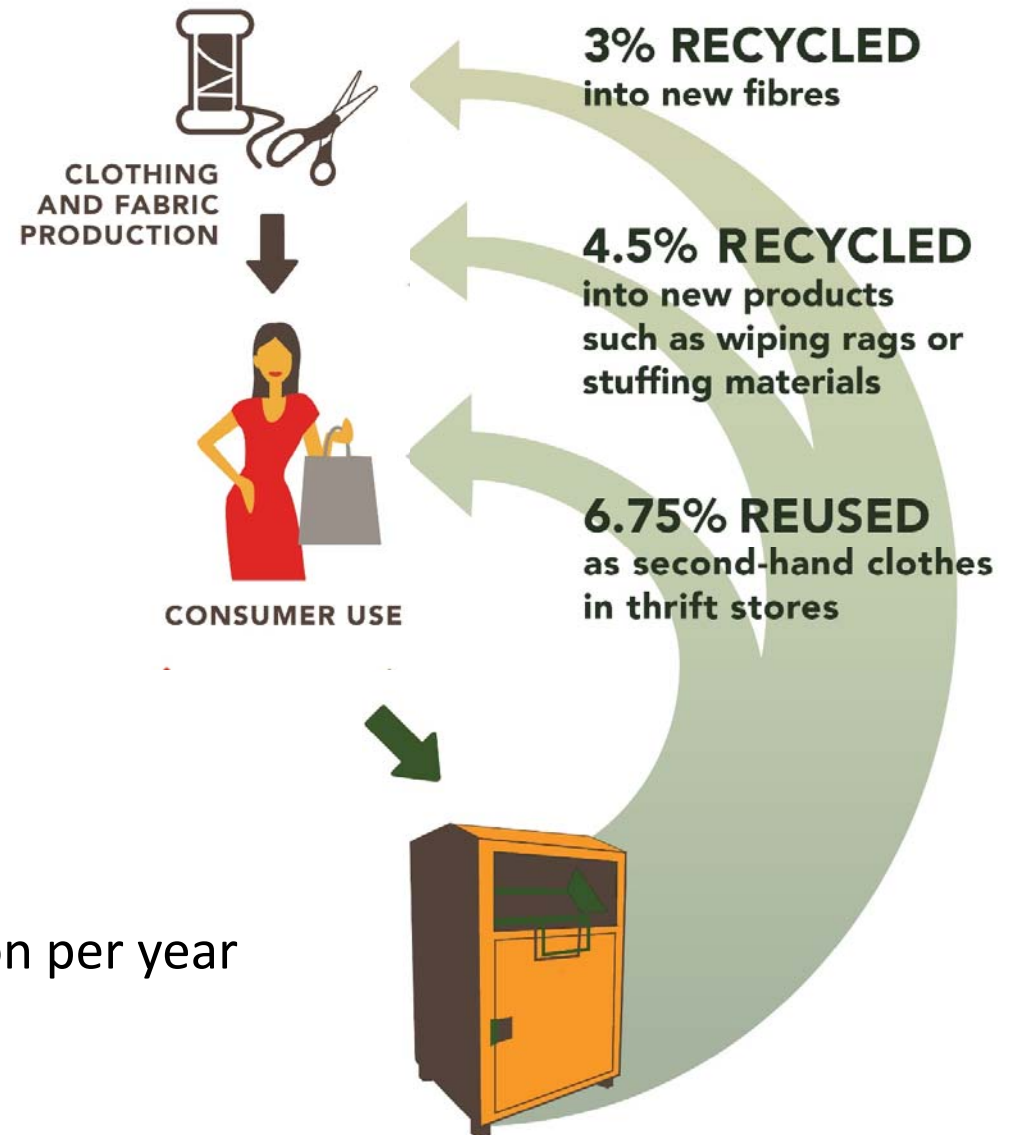


# A Circular Economy Challenge?

7.5% of textiles recycled



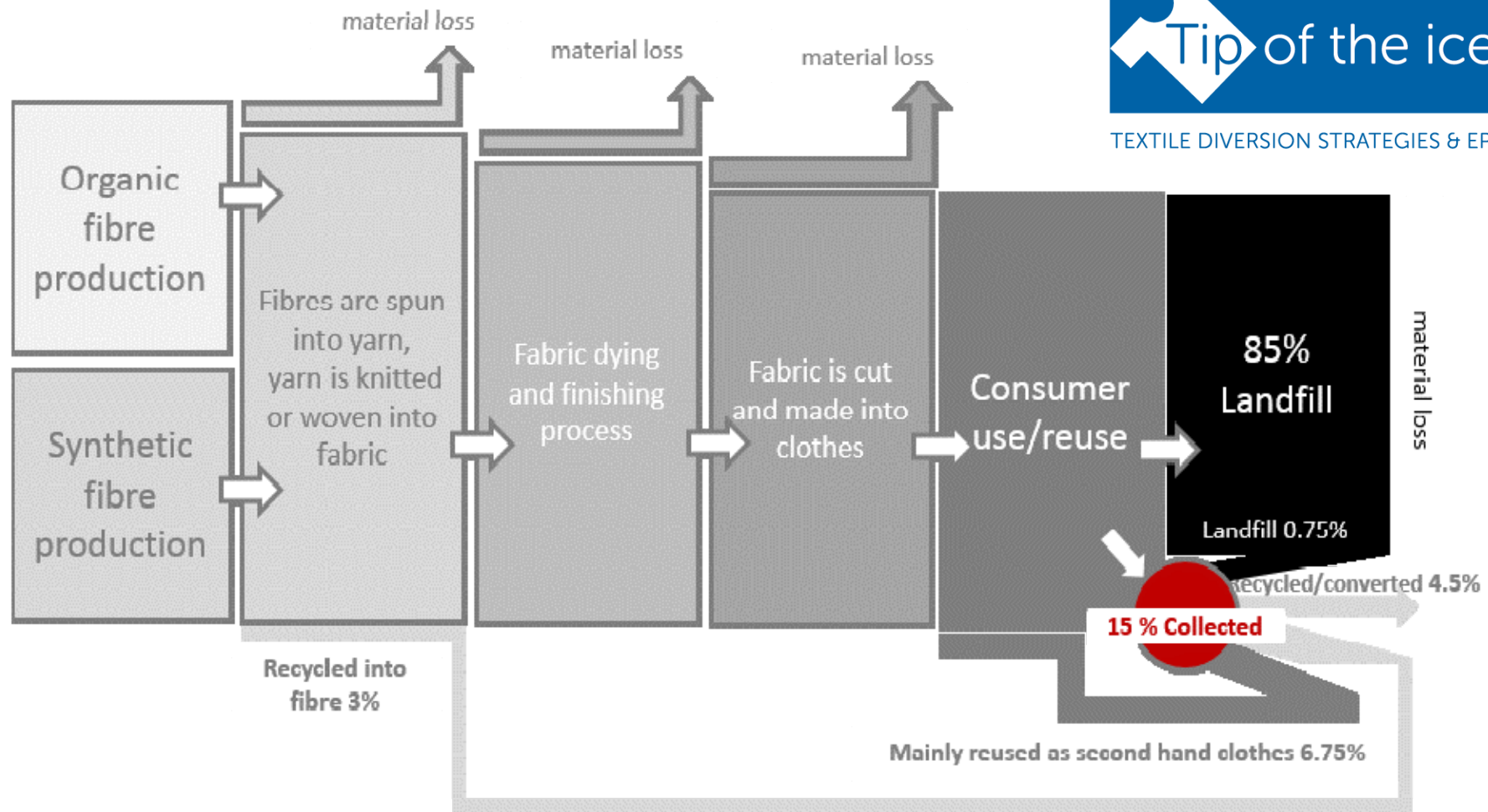
82 pounds of textile waste per person per year  
12.3 pounds are donated  
6.15 pounds are recycled



# Material Flow of Garment Production



TEXTILE DIVERSION STRATEGIES & EPR SYMPOSIUM



# Textiles Have Different Values



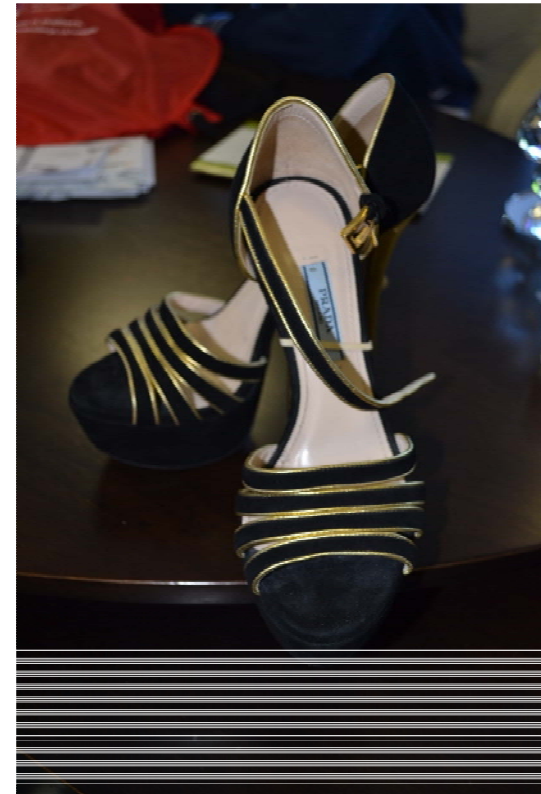
Used clothes good enough for reuse - garment value

Used clothes not good enough for reuse – fiber value

Dirty Textiles, or Textiles combined with other materials



# Used Clothes Good Enough for Reuse - *Garment Value*

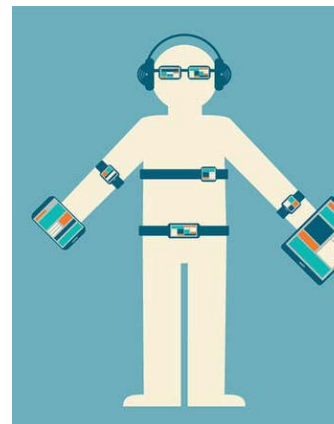


# Used Clothes Not Possible For Reuse

## Fabric Scraps - *Fiber Value*



# Dirty Textiles, or Textiles Combined with Other Materials – *The High Hanging Fruit*





# Where To Start?





# TEXTILES THE HOTTEST

ITEMS IN THE WASTE STREAM



sustainable  
STRATEGIES & SOLUTIONS

Textile Diversion and Recycling Symposium  
May 2018

Poster concept by Simalra Mahmud  
simalra09@gmail.com



# TEXTILES THE HOTTEST

ITEMS IN THE WASTE STREAM



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Thank you