



ITMF 2020

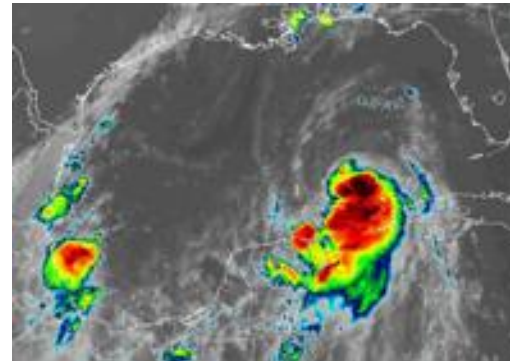
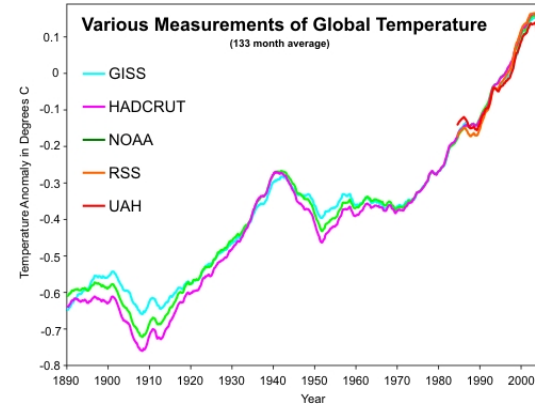
Seoul and Virtual

Recovering from an Addiction to Low Prices:

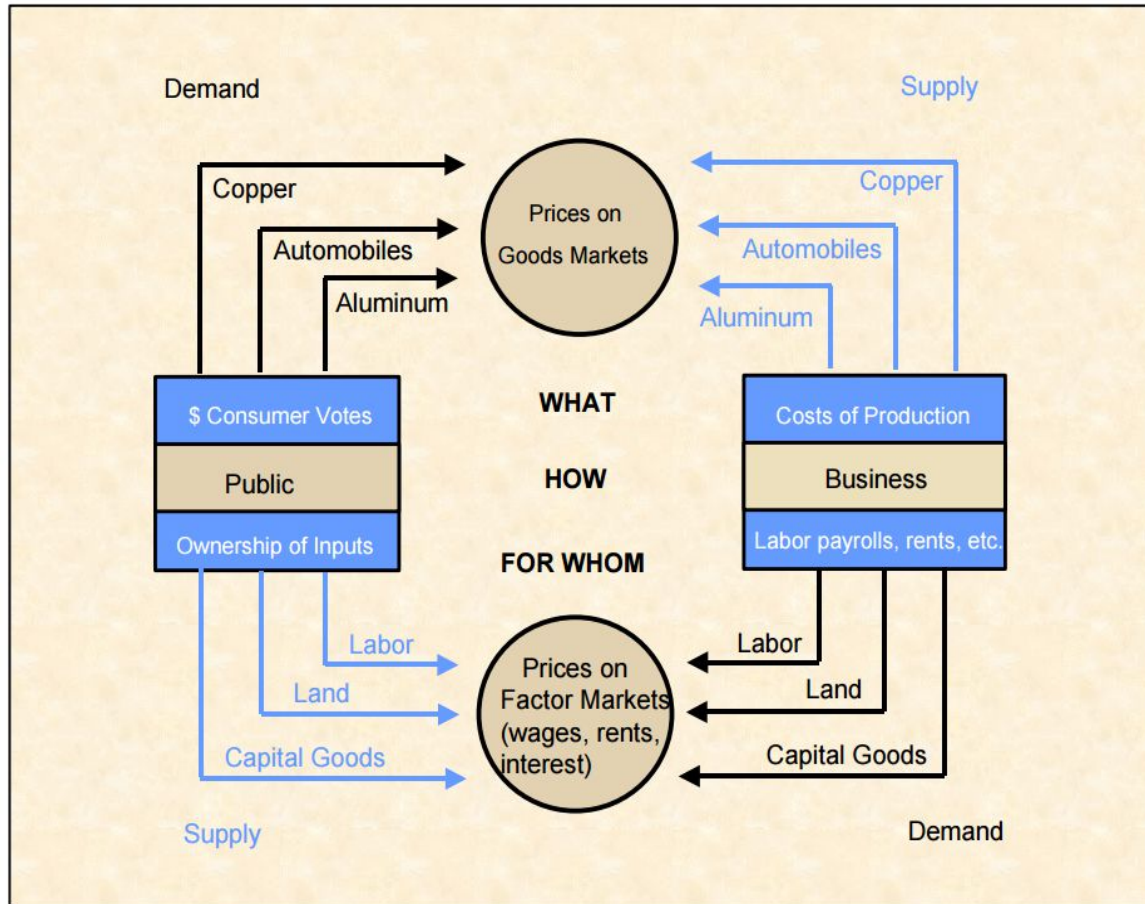
Three Insights

Rick Fowler CTO, Youngone Corp.

The Situation is Compelling



1st Classical Economics: Value-Added Pricing But We Forgot to Charge for Mother Earth



1961, Neo Keynesian "Competitive Price" System

The value of "Land" was not quite broad enough to remind us that Mother Earth might become ill.

1980's, Monetarist economics demand pricing moved to the Developing World, Trader's thrived. **We became addicted to low prices.**

2nd Wave, Media: Internet Shopping Habits

North America 1990

North America 2020

CENTRAL BUYING+Ctr. MARKETING in full swing - enabling many, many stores
CENTRAL MARKETING tells us what to buy

The **CONSUMER** follows the **MASSES**
MORE is BETTER, resulting in unseen waste and excess

Department & Mass Market Retailers
RISE

Internet becomes the Department store.
THE CONSUMER becomes the **BUYER**,
Consumers **SELECT ITEMS** for **THEMSELVES**
Rejecting Central Marketing

The **CONSUMER** prefers **INDIVIDUALITY**
LESS is MORE – reduce waste, value sustainability

Department & Mass Market Retailers **FALL**

The consumer has never had as much **POWER** or been closer to the manufacturing process than **NOW!**

MARKETING says what to buy



North America 1990

CONSUMER decides what to buy



North America 2020

THE EDUCATED “REAL” CONSUMER



THE “MIRNAVATOR”

Breaking barriers and shattering stereotypes. Promoting diversity and inspiring others.

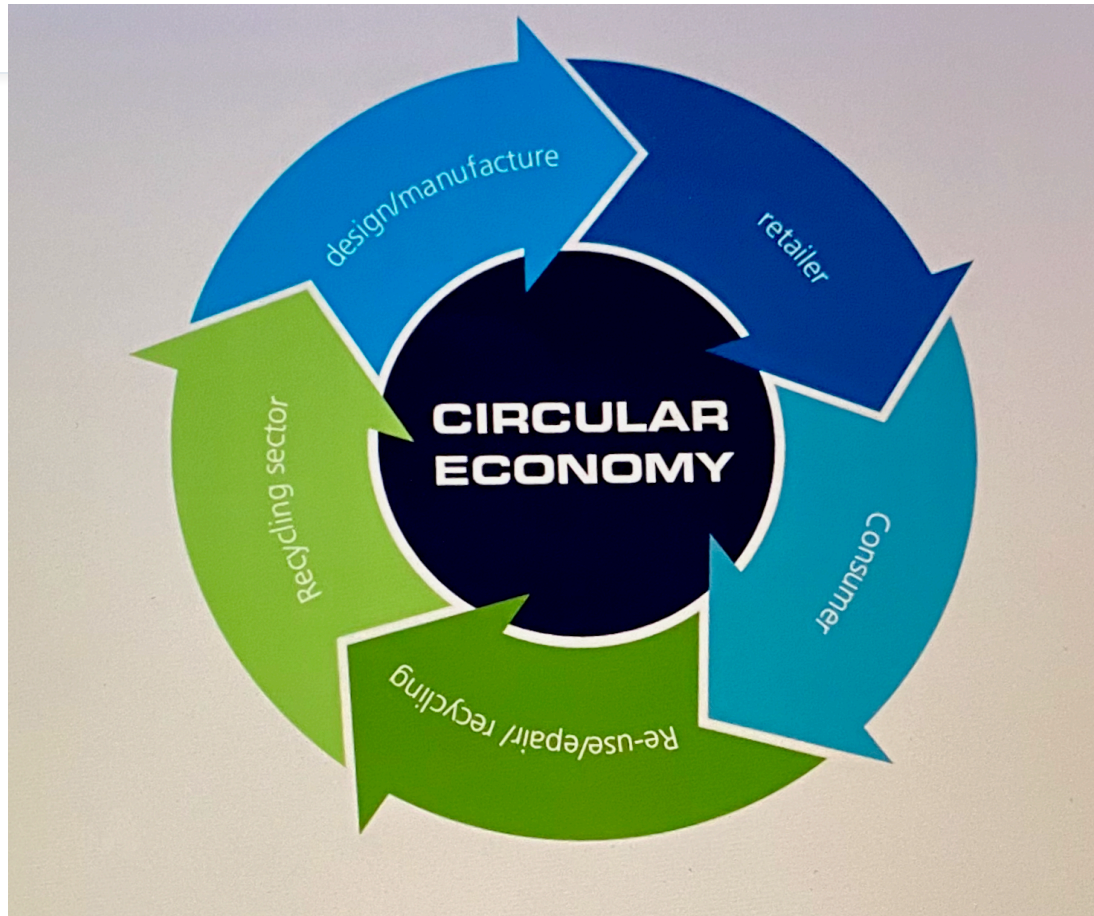


3rd Wave: e.g., Performance Synthetics

Engineering : Refinement : Engineering

- --1950's
 - 1960's
 - 1970's
 - 1980's
 - 1990's
 - 2000's
 - 2010's
 - 2020's
- **polymer science**
 - improve yarn
 - finishes, coatings
 - Asia era \$fiber
 - Wicking, laminate
 - China expands
 - finishes better
 - **polymer science**
- Nylon 6,6 military surplus; stockings
 - Nylon jersey dresses; **70D** weaves
 - Siliconized PET, Abba era; Cordura
 - Nylon 6, Kodra; **50D** weaves; microfiber
 - **30D** weaves, wicking; Gore, Sympatex®
 - **20D** weaves; **Scotchgard end production**
 - **PFAS** found in Antarctic penguins' milk
 - ECO to Sustainable to **Circular**,
more knowledge: more complexity

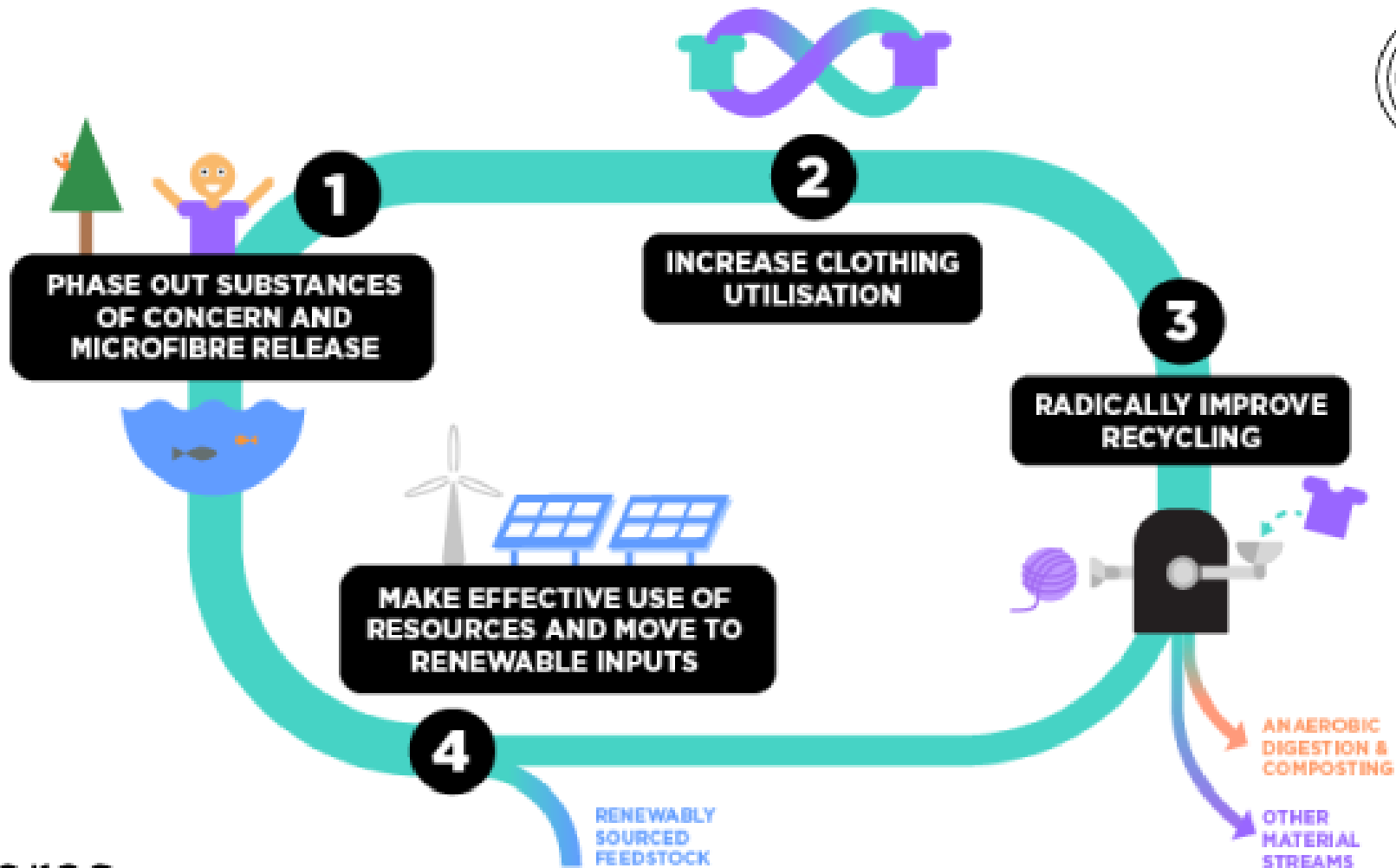
The Goal for Our Industry



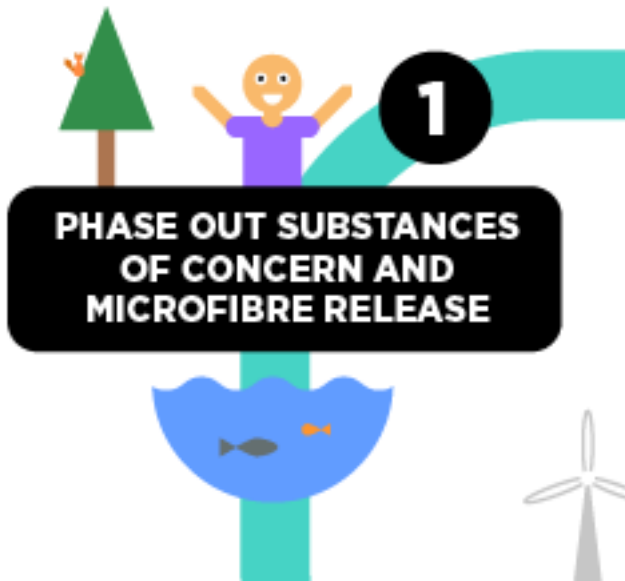
Currently the vertically oriented already participate heavily in 4 of the 5 sectors.

Only re-use/repair/recycling remains for us to engage.

Our Circularity Opportunities Today



1. Best Opportunity Now



Amplify Current Best Practices:

Mechanically Recycled PET

Long Chain Nylon Durability, +bio based

Lenzing Process MMCF

Embrace water and energy reduction in production:

Low Liquor, Dope dye; CO₂ Dye;

Digital Printing, Sublimation Printing

1. Best Opportunity Now



Embrace New Sources ASAP

Monomer-Level Recycling
Molecular-Level Recycling

**Support Novel Sources, by aggressive vetting
(recognizing this is like developing a vaccine)**
15 year development of PHA's,

We should be able to be strong supporters in this work
by **aggressively engaging to promote them**

2. Best Opportunity Now

Workwear brands, rental uniform makers, and the hard-use outdoor community all value this.



**Design for Longevity
As Game Changer**

2. Best Opportunity Now



Take the Big Challenge to Design Past Multi-Material Products

While new alternatives are developing, become specialists to design and offer items by:

- **single material**, as in flat and seamless knits
- Conscious Single-material-pieced items and can be **labelled** to ensure Full Life and EOL
- long life
- high value resale
- cascaded re-use

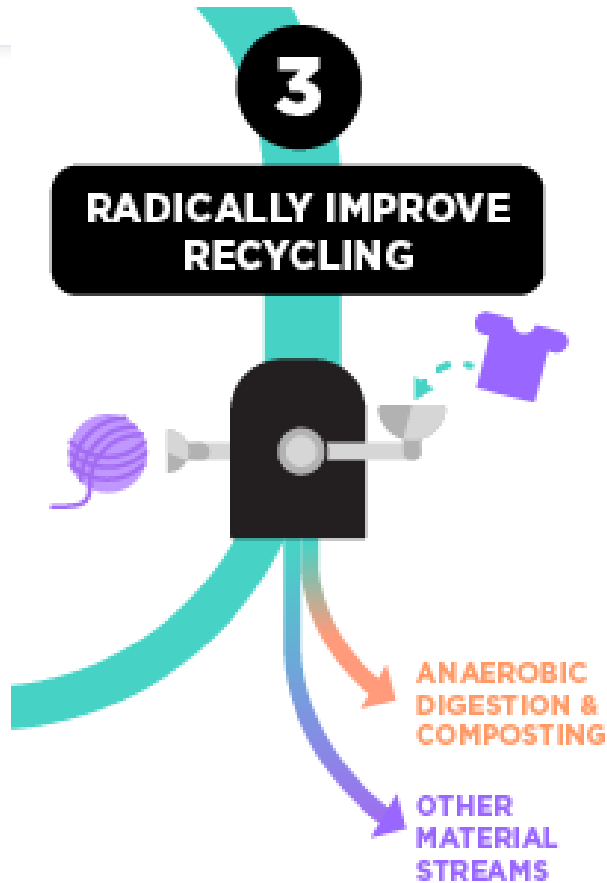
3. EU's Extended Producer Responsibility



EPR in the EU is a tool for producers to deliver the lifecycle management of their products:

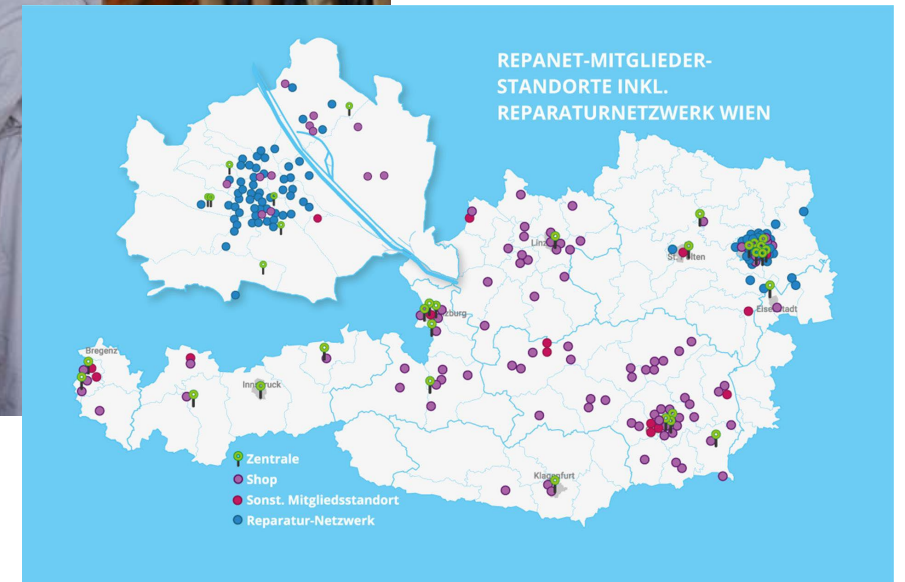
- **Manufacture for easy repair and dismantling into easily recyclable units at end of life**
 - **labelled for sustainable long life**
 - **circular high value re-sale**
 - **or cascaded re-use**
- Promote end of life management
- Design of the package and product
- Choice of materials to promote sustainability
- Utilization of recycled content

3. Refining the EU's EPR Initiative...



PPSP-EPR: Producer-Public-SocialPartnership EPR

Austria



Courtesy Matthias Neitsch www.rreuse.org

3. Emerging Clever Recycling

“Should be ...easy to communicate to the consumer”

Seattle, USA: Ridwell, local initiative specifically to collect hard-to-recycle items, clothing mostly cascaded high use.



Swiss: On Running, shoe subscription for collection ease



USA: Hefty Energy Bag, destined for Pyrolysis

4. Our Best Opportunities Now

Offer Recycled or
Best New Circular Material Choices



MAKE EFFECTIVE USE OF
RESOURCES AND MOVE TO
RENEWABLE INPUTS

4

RENEWABLY
SOURCED
FEEDSTOCK

INGKA™

NGR
PLASTIC RECYCLING TECHNOLOGIES

Demand for Recycling

Ingka Investments/Sustainability:

- **INGKA (Ikea) announced on 2nd September 2020 a commitment to invest an additional EU 600 million to enable the transition to a net zero carbon economy – increasing the overall investments into sustainability to EUR 3.9 billion.**



4. Our Best Opportunities Now

Offer Recycled or Best New Circular Material Choices



MAKE EFFECTIVE USE OF RESOURCES AND MOVE TO RENEWABLE INPUTS

4

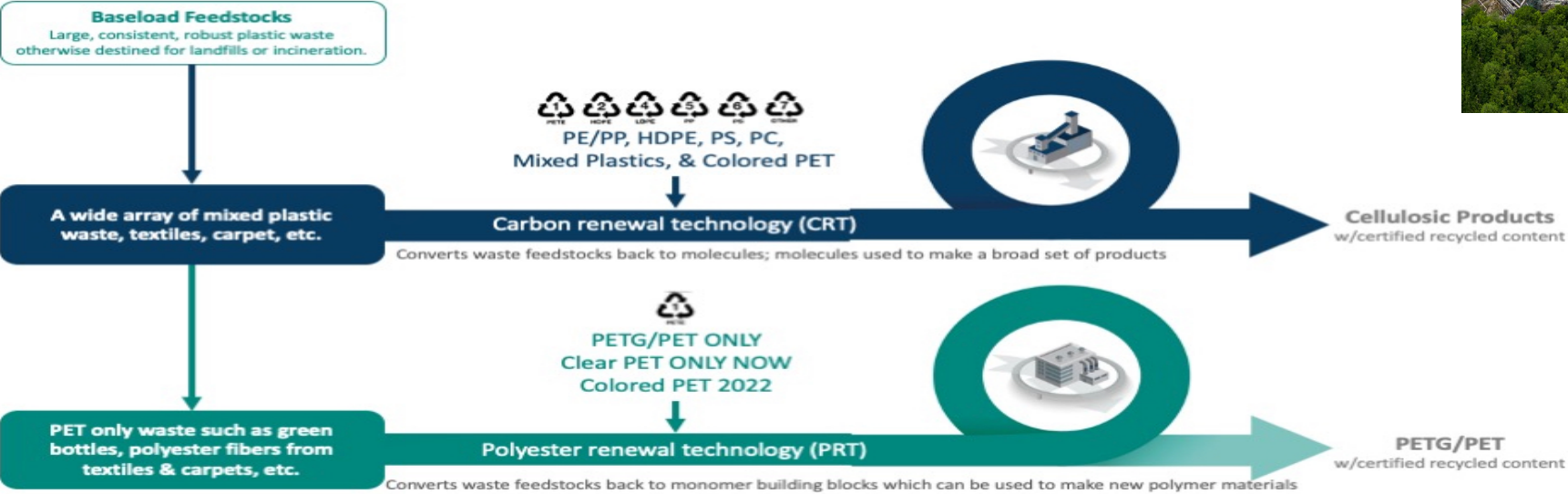
RENEWABLY SOURCED FEEDSTOCK

EASTMAN



**EASTMAN
CHEMICAL
KINGSPORT,
TENNESSEE**




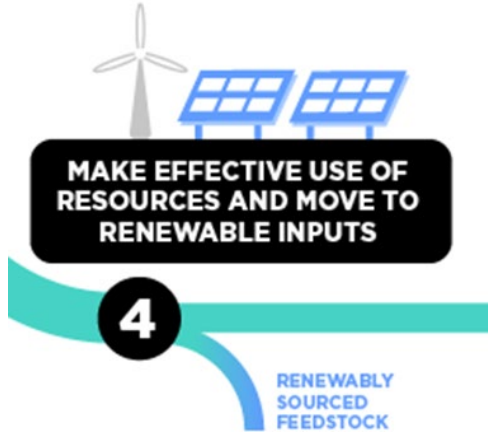
Creating value from waste: new life for reclaimed plastic



Many are working on Circular Futures

- Adidas
- Infinited
- BASF
- Natureworks
- Eastman
- Fulgar
- Erema
- Oerlikon
- NGR
- Ikea
- Invista
- DuPont
- Exxon
- BarMag
- Omya
- Zimmer
- Braskem
- Danimer
- Dow
- Sabic
- Bolt
- Patagonia
- On
- Arkema
- PureCycle
- BlueCON
- Nylstar
- and more!

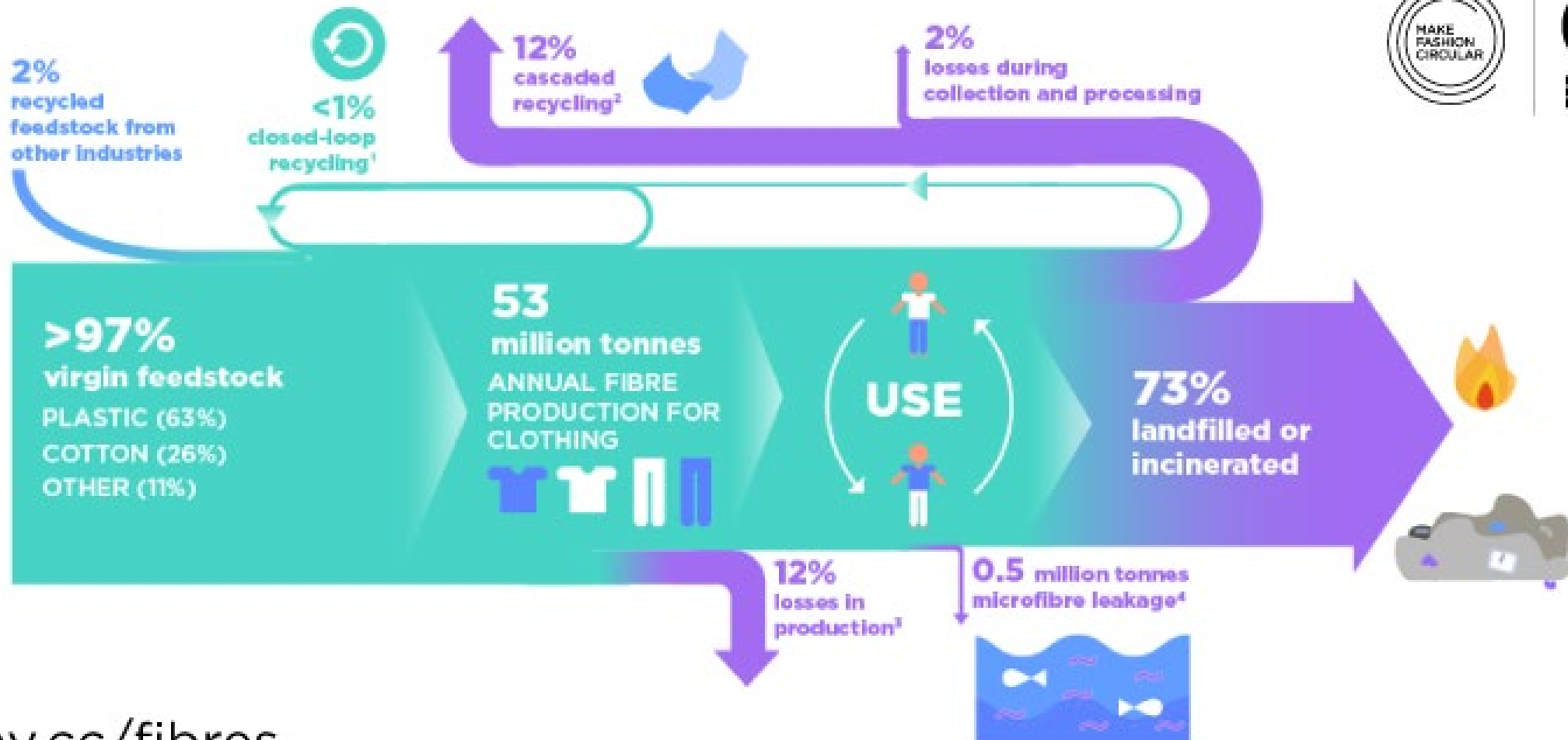
Summary of Opportunities

 <p>1 PHASE OUT SUBSTANCES OF CONCERN AND MICROFIBRE RELEASE</p>	 <p>2 INCREASE CLOTHING UTILISATION</p>	 <p>3 RADICALLY IMPROVE RECYCLING</p> <p>ANAEROBIC DIGESTION & COMPOSTING OTHER MATERIAL STREAMS</p> <p>SUPPLY/DEMAND BALANCE for CIRCULARITY</p>	 <p>4 MAKE EFFECTIVE USE OF RESOURCES AND MOVE TO RENEWABLE INPUTS</p> <p>RENEWABLY SOURCED FEEDSTOCK</p>
<ul style="list-style-type: none"> • Amplify best practices 	<ul style="list-style-type: none"> • Design for longevity • Label for cascaded re-use • Promote utility and cost per use as value 	<ul style="list-style-type: none"> • SUPPORT SUPPLY • Easy repair & recycle separation • Single polymer items • Label well to promote re-use 	<ul style="list-style-type: none"> • USE DEMAND • Create value from waste • Support use of polymers engineered simply for end use

An Urgent Agenda

- All Stakeholders engage in a **New Supply/Demand Balance of Recycling**
- Keep pricing real with **New Supply Chains Based On Value-Added Costing**:
No time left for cat and mouse. Give The **Windfall to Mother Earth**.
- Favor Geographically Efficient Supply Chains:
Short Roads save CO₂
- **Use Our Forums** to Collaborate and Create **Simple Circular Solutions**:
...It's Like Emergency Vaccine Discovery for our Planet

The Goal is Clear ...Reduce Waste





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