Tetra Pak Environment
ABCE Amman
Rodney Reynders & Hussam Nasser
Environment
Reducing the footprint throughout the value chain

- Responsible sourcing from renewable resources
- Supplier evaluation (base material suppliers) on environmental performance
- World Class Manufacturing (WCM) to improve efficiency, reduce energy consumption and waste and minimize water loss
- Use of renewable energy where possible
- Investment in renewable electricity projects
- Work towards reducing impact of transportation and travel of both products and people
- Processing and filling solutions that reduce energy use, water consumption and food loss
- Environmental benchmarking services
- Working to improve recycling of our Used Beverage Cartons (UBC) across all markets
Waste Hierarchy
Waste Minimizaton to Recycling solutions

Waste management

Food production

Consumption

Transports

Retail

Food processing and filling

Tetra Pak
# Key findings from the 2015 environmental research

## Industry

<table>
<thead>
<tr>
<th>RECYCLING AND RENEWABILITY</th>
<th>are some of the key areas where industry expects innovation from the packaging sector. Environmental performance of equipment is also increasingly regarded as fundamental.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRAND EQUITY</td>
<td>is the most important driver for environmental initiatives. 70% of influencers declare environment has an impact on brand equity.</td>
</tr>
<tr>
<td>BARRIERS</td>
<td>related to technology, quality and availability of sustainable materials have all declined vs. 2013.</td>
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<tr>
<td>ON-PACK</td>
<td>is the #2 preferred channel for environmental communication, after corporate websites.</td>
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*Source: Environment Research 2015, Millward Brown for Tetra Pak*
## Key findings from the 2015 environmental research

### CONSUMERS

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENVIRONMENTAL ACTIONS</strong></td>
<td>70%</td>
<td>70% of consumers have purchased an environmental product, even if it costs more.</td>
</tr>
<tr>
<td></td>
<td>66%</td>
<td>66% have avoided a particular product or brand for environmental reasons.</td>
</tr>
<tr>
<td></td>
<td>39%</td>
<td>39% of consumers always/often look for environmental information on beverage packaging.</td>
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</tbody>
</table>

### HAVING KIDS

- Highly influences consumers in looking for environmental products.

### ON-PACK AND SOCIAL NETWORKS

- 29% of consumers mention lack of information as a barrier to buying environmental products.
- Are among the preferred channels to read and follow environmental information.

**Source:** Environment Research 2015, Millward Brown for Tetra Pak
The new Generation…..Millennial’s

Environment is an increasingly relevant issue to young consumers

- Increasing interest about environmental issues
- Sense of guilt when not acting responsibly

Young consumers attitude is positively evolving

- Recycling
- Buying products from socially responsible companies
- Reading food & drinks products labels to ensure sustainable impact

Expectations on companies to increase their commitment

- Majority believe companies should care and do more for the environment
Product innovation aiming at reducing waste

Ways in which we reduce waste in our products

1. We design products that use fewer raw materials

2. We use renewable materials as much as possible

3. We use design innovation that facilitates recycling

4. We recycle waste in our factories
Reducing and managing waste

Tetra Pak

- World Class Manufacturing (WCM) to increase efficiencies and reduce waste
- Chemicals management

Customers

- Equipment innovation to improve waste reduction as well as food and packaging losses
Used beverage cartons are not waste. They are a valuable raw material for new products.
Turning used cartons into an asset
Effective separation and recycling of all layers
Key success factors to increase recycling

- Increase consumer awareness
- Support collection & sorting infrastructure
- Boost business opportunities for recycling entrepreneurs
- Expand market opportunities for recycled materials
Increase consumer awareness

- Drive consumer campaigns
- Drive school programmes
- Partner with local organisations

Support collection & sorting infrastructure

Boost business opportunities for recycling entrepreneurs

Expand market opportunities for recycled materials

We teach school children in Turkey about recycling

Since the start of 2005, the recycling awareness programme “Little Things Renew Nature” has been seen by over a million children in Istanbul, Bursa and Izmir.
Tetra Pak India forms waste dealers club

Tetra Pak India brought together NGOs, recyclers, scrap dealers and street waste pickers in Delhi, India. As a result, the city now has a waste dealers club (Paryavaran Mitra) and the process for collecting used beverage cartons has been significantly improved.
Boost business opportunities for recycling entrepreneurs

Increased recycling in China

With development support from Tetra Pak, the Chinese recycling company, Hangzhou Fulun Ecology Technology increased its recycling capacity from 20k tonnes of paper to 35k tonnes (75% increase) in just under 10 years. They now also recycle the plastic and aluminium (PolyAl) from used beverage cartons, and sell it to plastic recyclers and fireworks manufacturers.
Expand market opportunities for recycled materials

Roofing tiles in Brazil
Since 2000, we have supported the market for roofing tiles made out of plastic and aluminium from recycled beverage cartons. Manufacturers and local universities cooperated to enable material analyses, which led to important product improvements. Now, over 15 roofing tile manufacturers are operating in Brazil, producing a million tiles each year.

- Match recycled materials and market needs
- Promote recycled end-products
We have mapped used beverage carton recyclers globally

Active recycling in 43 countries (trans-border shipments take place in several markets)

Active polyAl recycling in 24 countries

160 active recycler entities (some have several sites) – of which 60 are recycling polyAl
Over 100 paper mills worldwide recycle beverage cartons
Dedicated recycling capacity in GME&A
Existing recyclers and ongoing projects

- **Maghreb**
  - Tunisia
  - One new recycler under development.

- **West Africa**
  - Nigeria
  - One recycler producing panel boards.
  - One new recycler under development.

- **South Africa**
  - Two paper mills recycling cartons in the country.

- **East Africa**
  - Kenya & Tanzania
  - One recycler producing panel boards in Kenya;
  - One new recycler under development in Tanzania.

- **Arabia Area**
  - Saudi Arabia & UAE
  - One recycler producing panel boards;
  - Two new recyclers under development.

- **Turkey**
  - Three recyclers recycling cartons in the country.
  - Two new recyclers starting up in 2016.

- **Iran**
  - One new recycler under development.

- **Egypt**
  - One recycler recycling cartons and PolyAl in the country.
What is polyAl?

► It is the non fiber part of the beverage cartons
► Its composition is 80% polyethylene and 20% aluminum
PolyAl recycling technologies

Thermo-Mechanical Recycling

**Technologies:** Pyrolysis, Gasification, Volatilization

Heat is used to separate the polymers from the aluminum which can be further recycled as a material on its own.

Mechanical Recycling

**Technologies:** Agglomeration, Panel Board, Densification

PolyAl is recycled either as a multi-material compound or through mechanical separation of the components for further material recycling.

Chemical Recycling

**Technologies:** Delamination, Solvent separation

The use of chemicals transform the polyAl into separate material streams by breaking the bond between the materials or by dissolving the polymers.

Full Carton Recycling

**Technologies:** Composite Extrusion

PolyAl is recycled together with the fibres as a multi-material compound, which can be mixed with other polymers and bonding materials.
There are significant material variations depending on input material and process.

Material properties depend on:

- Process set-up and equipment used
- Process parameters (temperature, pressure etc.)
- Material composition (% LDPE, HDPE, aluminium, fibre, moisture etc.)
Agglomeration

The material can be used for various products:
- Connection box
- Covers for shafts
- Water proofing membrane
- Crates
- Office materials
To succeed tomorrow…
We need to work together today!
Thank you
Questions ?