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***Meeting the Need for  
More Sustainable Packaging***

***Claire K. Sand, Ph.D.***

## *Agenda*

- ▶ *More sustainable packaging is needed*
  - *Consumers want it*
  - *Retailers require it*
  - *Legislation demands it*
- ▶ *Packaging Value Chain & LCAs reveal opportunities*
  - *Responsible Package Sourcing*
  - *Optimal Package Design*
- ▶ *What we do to have more Sustainable Food Packaging*
- ▶ *Resources*

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# *Sustainability?*

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## *Sustainability as the SPC defines it...*

- ▶ *Is beneficial, safe & healthy for individuals and communities throughout its **life cycle**;*
- ▶ *Meets **market criteria** for performance and cost;*
- ▶ *Is sourced, manufactured, transported, and recycled using **renewable** energy;*
- ▶ *Maximizes the use of renewable or recycled source materials;*
- ▶ *Is manufactured using **clean production** technologies and best practices;*
- ▶ *Is made from **materials healthy** in all probable end of life scenarios;*
- ▶ *Is physically designed to **optimize** materials and energy;*
- ▶ *Is effectively recovered and utilized in biological and/or industrial **cradle to cradle** cycles.*

## *Consumers want it*

- ▶ *LOHAS US consumer segment is **36 million** (33%)*
- ▶ *Carbon trust resulted in increased awareness*
- ▶ *GHGs connected to manufacture, transport, of packaging*
- ▶ *Frown upon **greenwashing***

## *Consumers see packaging waste*

- ▶ *Eastern Garbage Patch*
- ▶ *Garbage Atolls*



## *Retailers require it*

- ▶ ***Wal-Mart initiatives motivate suppliers***
  - ***Sustainability scores define market decisions***
- ▶ ***Tesco, Asda, M&S in the UK***
- ▶ ***IKEA practices set the tone***

## *Global legislation moves forward*

- ▶ *EU Directive on Packaging and Packaging Waste (2004/12/EC)*
- ▶ *REACH (2007) has broad implications*
- ▶ *BRICs, Mexico, Indonesia, Vietnam, Korea and Turkey struggle*

## *USA lags behind*

- ▶ *Leading emitter of greenhouse gases*
- ▶ *1997 Kyoto Protocol unsigned*
- ▶ *Led to legal inconsistency from state to state and potential WTO barrier to trade*

**off the mark**

by Mark Parisi

www.offthemark.com

IT'S REALLY A SHAME TO HAVE  
ALL THAT WASTEFUL PACKAGING...



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*Consumer, Retailers, and  
Legislation  
push and pull  
for more sustainable  
packaging  
has created opportunities*

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# *Opportunities?*

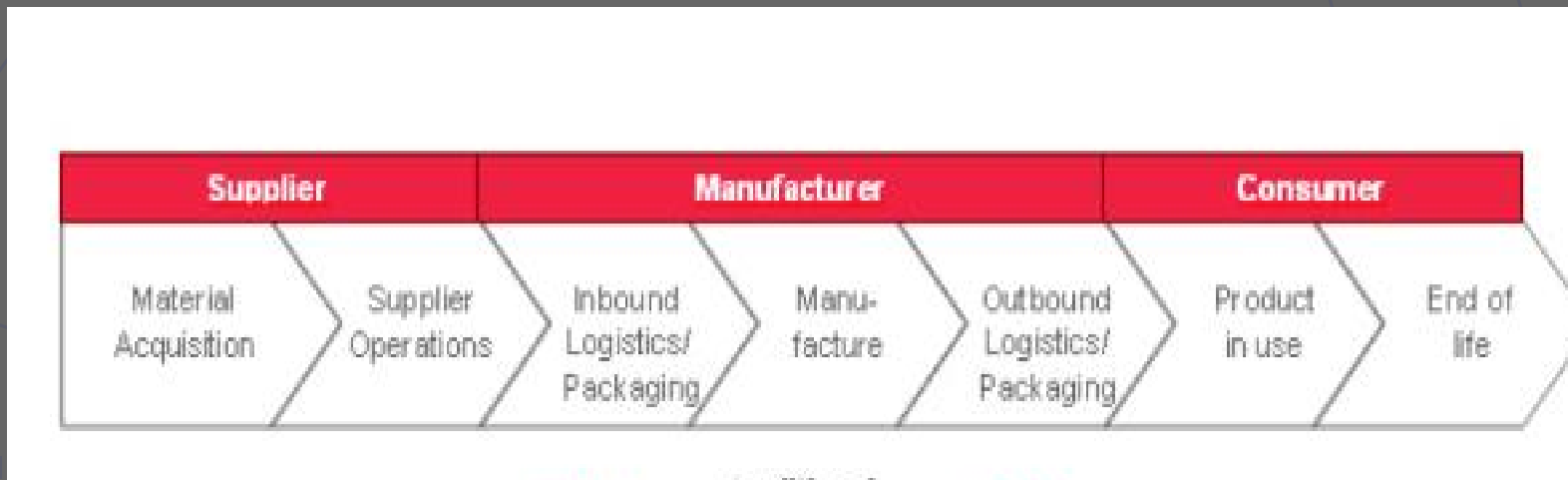
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***Packaging Value Chain  
&  
LCAs  
reveal opportunities***

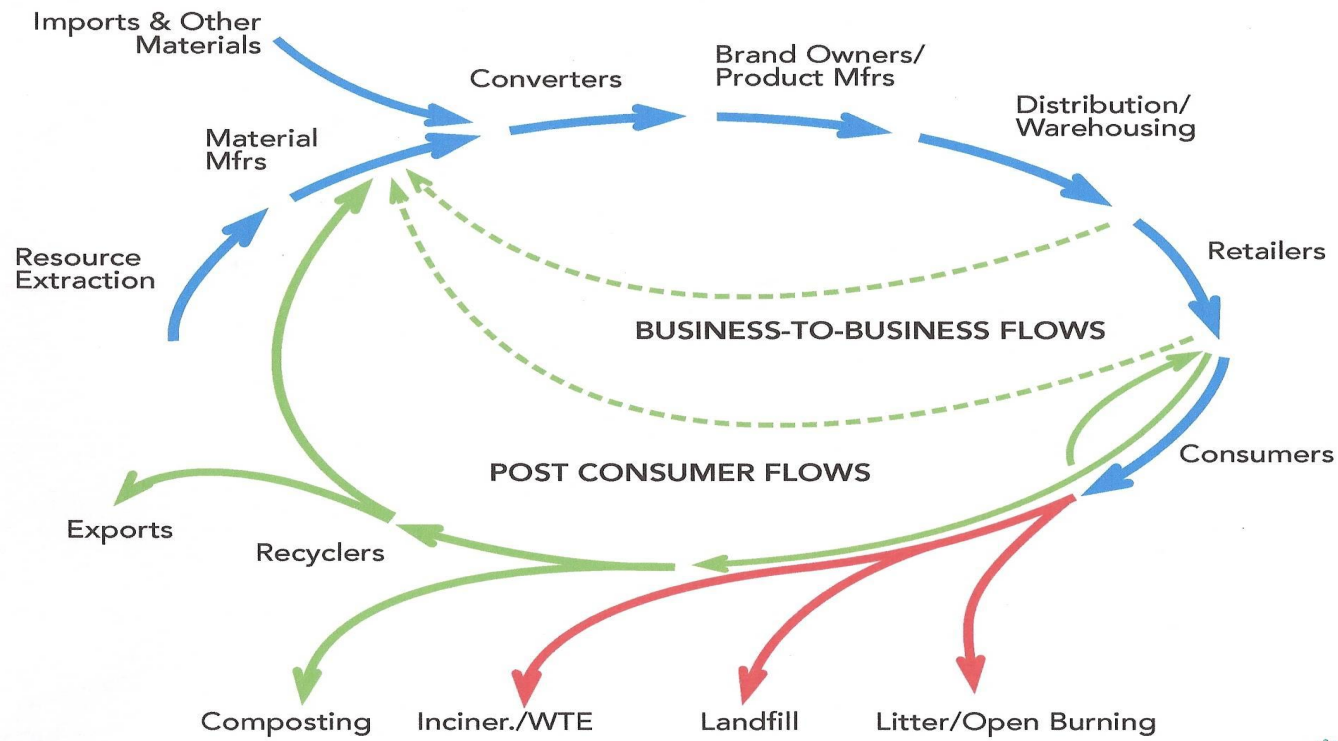
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# Value Chain full of Opportunities



# Packaging LCAs and C2C thinking focuses opportunities

## Packaging Life Cycle



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## *LCA is the standard to assess carbon generation*

- ▶ **Detailed LCAs**
  - **Stonyfield Farms**
- ▶ **Mindful LCAs**
  - **Beverages**
  - **Nau**

## *LCAs are complex*

- ▶ *Certifications vary*
- ▶ ***Cradle-to-cradle** may not be fully achievable with food packaging*
- ▶ *Energy balancing alters perspective*
  - *Peninsula Packaging's solar power system supplies 25% power needed to produce clamshell blister packs - a consumer perceived wasteful package*

## *Companies React*

- ▶ *Toward Triple Bottom Line (TBL) thinking*
  - ▶ *People (social responsibility)*
  - ▶ *Profit (\$)*
  - ▶ *Planet (environmental sustainability)*
- ▶ *Sourcing*
- ▶ *Converting*
- ▶ *Transporting*
- ▶ *Designing*

## *Pursue Responsible Sourcing*

*Build raw material  
sourcing **relationships***

*Support **low energy use**  
converting processes*

***Decrease GHG** generation  
from package transport*

## **Raw Material Sourcing begins with Relationships**

- ▶ *50 % of the Fortune 100 companies choose suppliers that can meet sustainability criteria*
- ▶ *DuPont pledged to earn 1/4 of revenues from renewable resources by 2010*
- ▶ *Wood-based paperboard is at a crossroads-FSC certified has taken hold although only 4% of forests FSC certified*
  - *eg., J&J*

## *Ensure Material Health*

- ▶ *Develop an internal “do not use” list*
  - *Usually PVC*
- ▶ *Asses end of use of toxins*
- ▶ *Assess use of inks, adhesives, coatings*
- ▶ *Address RECAH compliance*

## *Environmental groups assist industry*

- ▶ *BASF received the Federation of German Industries (BDI) Environment Award in the category “Partnerships for Sustainable Development” for the project “Partners for Sustainable Development,” work with UNIDO and UNEP and BASF in Africa (2006).*
- ▶ *Resources at end of slides*

## *Use Converting Processes that conserve*

- ▶ *Over 90% of environmental impact for packaging is in material production*
- ▶ *European Federation of Corrugated Board Manufacturers (fefco) is a best practice*
- ▶ *Focus is needed*
  - *Nestle concentrates on reduced water usage for more sustainable packaging in internal operations with their WATER program*

## *Use Package Transport that uses less energy*

- ▶ *Transportation sector is 1/4 of the total US energy consumption & 1/3 of carbon dioxide (GHG) emissions.*
- ▶ *Schoeller Arc and CHEP reduce through reuse*
- ▶ *Corrugated transports 70% of materials*
  - *Reuse of corrugated containers in non-closed loop environment is replacing old school closed loop reuse*

## *Design for Sustainability*

- ▶ *Reduce, Reuse, Recycle can conflict and result in:*
  - *less than optimal solutions*
    - ▶ *Wal-Mart score card-resin changes advocated*
  - *Less sustainable packaging*
    - ▶ *Tesco*
    - ▶ *Reuse abuse*

## *Design to Reduce Packaging*

- ▶ *TBL Opportunities abound!*
- ▶ *Dasani bottle redesign reduced PET use by about 10,000 tons in 2005*
- ▶ *All Small & Mighty concentrated 32-oz detergent saves 150 million pounds of HPDE and 750 million sq ft of corrugated board vs. 100oz bottles*
- ▶ *Eliminate packaging*

## *Design to Reduce Packaging continued*

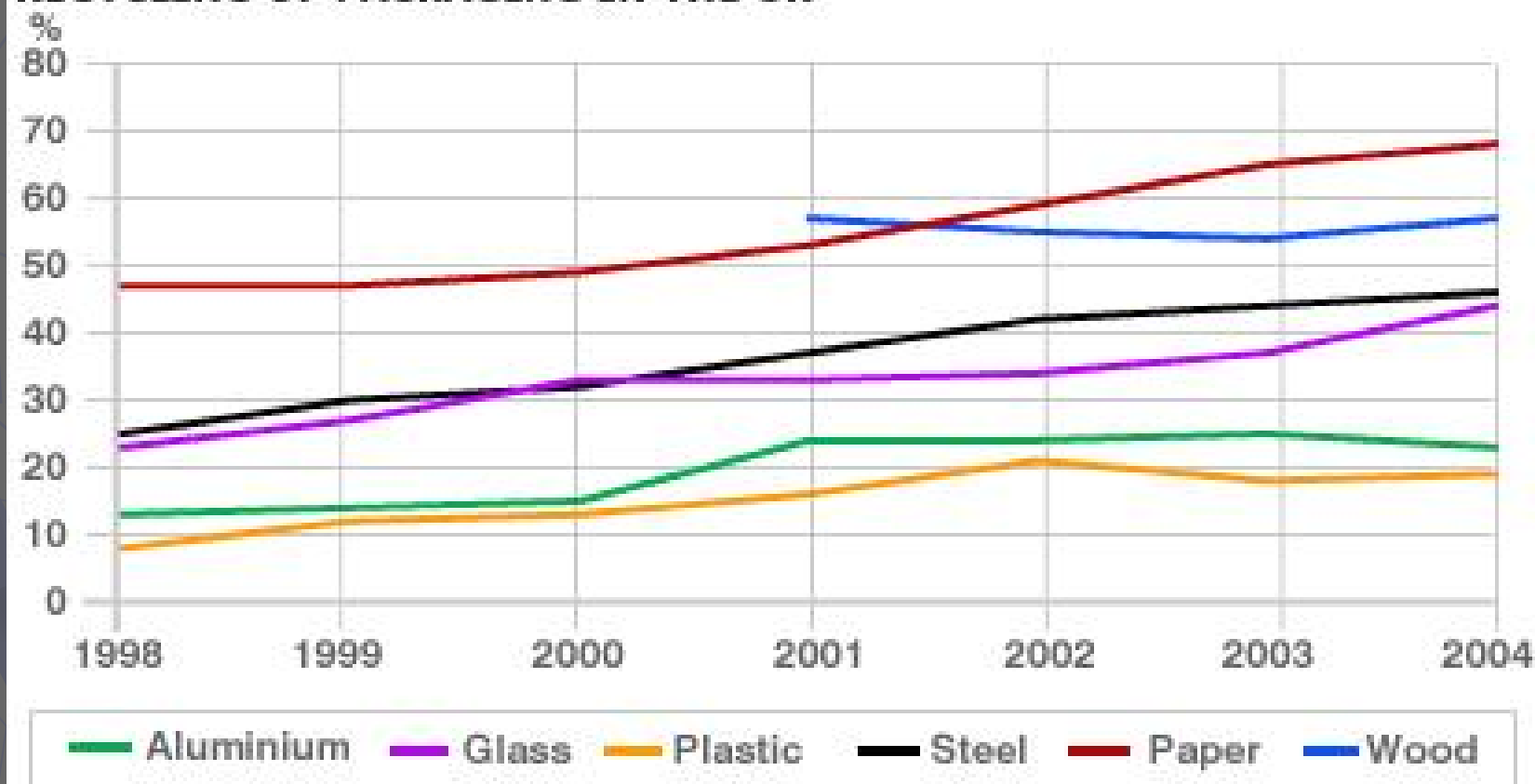
- ▶ *Squared packages such as Ocean Spray 64-oz juices*
- ▶ *saves 11% in shipping-related corrugated costs to reduce energy expenses throughout distribution.*
- ▶ *Higher performance and nanopolymer resins*
- ▶ *Dannon's elimination of a plastic yogurt cap reduced packaging by 3.6 million pounds*
- ▶ *Lighter weight 300ml Grolsch beer bottle*

## *Design for Reuse is viable*

- ▶ *75% of the German market share is refillable PET that can be refilled 20 times.*
- ▶ *B2B*
  - *Opportunities for bag in box technologies (esp with dry ingredients) are prevalent*

## Recycling dominates in UK

### RECYCLING OF PACKAGING IN THE UK




Total packaging waste 2004 - 10.2m tons

SOURCE: Defra

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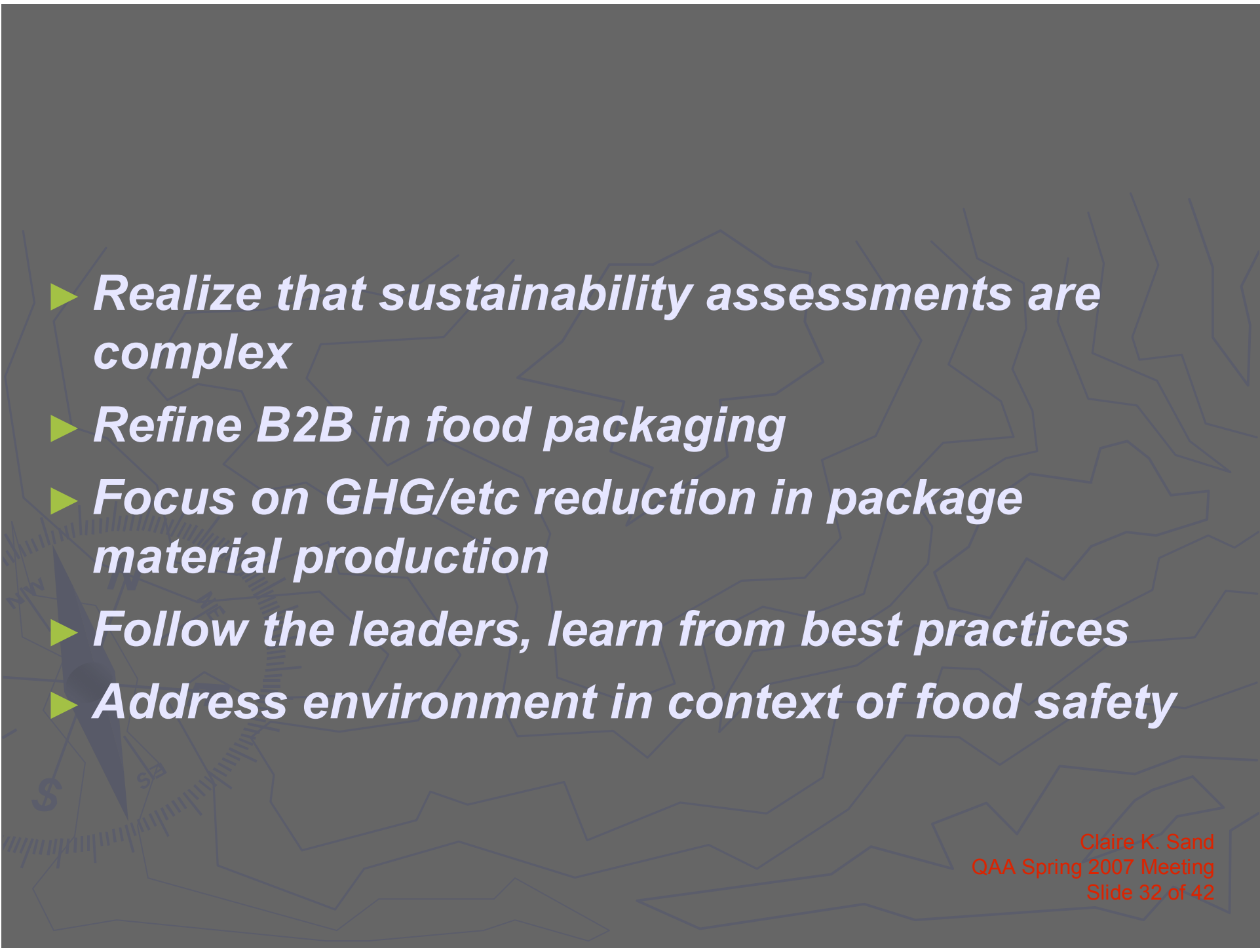
## *Design for Recycling is viable*

- ▶ *UK's first food grade PET recycling plant opening in 2007.*
- ▶ *Weyerhaeuser world's largest 100% recycled container board mill opening in 2008*

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# What can we do to achieve more sustainable food packaging?

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- 
- ▶ *Realize that sustainability assessments are complex*
  - ▶ *Refine B2B in food packaging*
  - ▶ *Focus on GHG/etc reduction in package material production*
  - ▶ *Follow the leaders, learn from best practices*
  - ▶ *Address environment in context of food safety*

## *Refine B2B in food packaging*

- ▶ *Reduce, reduce, recycle when possible*
- ▶ *Be aware of new technologies, approaches*
- ▶ *Examples*
  - *Ingredients*
    - ▶ *Tertiary 55gallon drums*
  - *Consider eliminating secondary packaging*
  - *Packaging Materials*
    - ▶ *Recycle core rolls, waste*
    - ▶ *Evaluate, specify reduced packaging*

## *Follow the leaders, learn from best practices*

- ▶ ***Global packaging trends***
- ▶ ***SPC members***
- ▶ ***J&J***
- ▶ ***Aveda***
- ▶ ***Starbucks***

## *Address environment in context of food safety*

- ▶ *More research to assess the migration from recycled polymers*
- ▶ *Employ HACCP principles when assessing the use of reduced, reused and recycled packaging materials*

## *Recap*

- ▶ *More sustainable packaging is needed*
  - *Consumers want it*
  - *Retailers require it*
  - *Legislation demands it*
- ▶ *Packaging Value Chain & LCAs reveal opportunities*
  - *Responsible Package Sourcing*
  - *Optimal Package Design*
- ▶ *What can we do to have more **Sustainable Food Packaging***
- ▶ *Resources*

## Readings & Resources

- ▶ **Sustainable Packaging Coalition**
  - <http://www.sustainablepackaging.org>
- ▶ **GreenBlue**
  - <http://www.greenblue.org>
- ▶ **Packaging Strategies**
  - <http://www.packstrat.com>
- ▶ **Global leaders comments**
  - [http://www.pwc.com/gx/eng/pubs/ceosurvey/2007/10th\\_ceo\\_survey.pdf](http://www.pwc.com/gx/eng/pubs/ceosurvey/2007/10th_ceo_survey.pdf)
- ▶ **Definition of Sustainable Packaging**
  - <http://www.sustainablepackaging.org/pdf/Definition%20of%20Sustainable%20Packaging%2010-15-05%20final.pdf>
- ▶ **Diagram of Sustainable Packaging**
  - <http://www.sustainablepackaging.org/pdf/nestingdiagram.pdf>

## Interesting Readings & Resources continued

- ▶ *The Triple Bottom Line: How Today's Best-Run Companies Are Achieving Economic, Social and Environmental Success -- and How You Can Too* by Andrew W. Savitz Karl Weber
- ▶ *European Federation of Corrugated Board Manufacturers*
  - <http://fefco.org/>
- ▶ *EU directives*
  - <http://www.epa.gov/epaoswer/osw/internat/fact-sht/package.pdf>
  - <http://europa.eu/scadplus/leg/en/lvb/l21207.htm>
- ▶ *Life Cycle Analysis*
  - [http://www.idspackaging.com/packaging/europe/EUROPEN/Publications/5\\_0/g\\_supplier\\_5.html](http://www.idspackaging.com/packaging/europe/EUROPEN/Publications/5_0/g_supplier_5.html)
- ▶ *National Packaging Waste Database (UK for Eu compliance by 2008)*
  - <http://www.npwd.org.uk/>
- ▶ *Carbon footprint calculator*
  - <http://www.sustainabletravelinternational.org/offset/index.php?c=1>

# Definitions

- ▶ BRIC Brazil, Russia, India, China
- ▶ B2B business to business
- ▶ C2C cradle to cradle
- ▶ ***CHEP Commonwealth Handling Equipment Pool***
- ▶ EU European Union
- ▶ G8 Canada, France, Germany, US, Japan, Russia, UK, Italy
- ▶ GHG green house gases
- ▶ LOHAS Lifestyles of Healthy and Sustainable
- ▶ LCA Life Cycle Analysis

# Definitions

- ▶ M&S Marks and Spencer's UK retailer
- ▶ *PET polyethylene terephthalate*
- ▶ PVC polyvinyl chloride
- ▶ REACH *Registration, Evaluation and Authorization of Chemicals*
- ▶ UNIDO *United Nations Industrial Development Organization*
- ▶ UNEP *United Nations Environmental Program*
- ▶ *WATER Work to continue reducing the amount of water used per kilo of food and beverage produced; Assure that our activities respect local water resources; Take care that water discharged into the environment is clean; Engage with agricultural suppliers to promote water conservation among farmers; Reach out to others to collaborate on water conservation and access, with a particular focus on women and children*