Sustainable Packaging Design – Reducing Packaging Footprint

S.N. Venkataraman
V P Marketing
ITC Limited
Paperboards & Specialty Papers Division
Agenda

Packaging – Goals, Functions, Optimum Packaging, Role and Sustainable Packaging

Sustainable Paperboard Packaging – The ITC Way

Consumer’s View of Green Packaging and Ten Tips for Sustainable Packaging Design
Functions of Packaging

- Protect
- Promote
- Provide Information
- Convenience
- Handling
- Ease of Disposal
This “Innventia AB” model shows that the environmental consequences of product losses caused by excessive packaging reduction are far greater than guaranteeing adequate protection through an incremental excess of packaging.
Role of Packaging

Environmentally – saves more resources than it uses

Economically – reduces cost of distribution and merchandising

Socially – meets consumers’ expectations on product protection, safety, handling & information

Source: PWC study: Sustainable Packaging – Myth or Reality, 2012
What is Sustainable Packaging?

• Designed holistically with the product in order to optimize overall environmental performance – an LCA approach

• Made from responsibly sourced materials

• Manufactured using clean production technologies

• Efficiently recoverable after use

• Sourced, manufactured, transported and recycled using least and preferably renewable energy

• Able to meet market criteria for performance and cost

MATERIALS FRONTIER - DRIVERS FOR MATERIALS TECHNOLOGY SHIFTS

- Natural Ingredients
- Labor Intensive
- Attractive Aesthetics
- Cheap petroleum
- Ease of manufacture
- Low labor input
- Excellent functionality
- Biodegradable
- Bio based (renewable resource)
- Recycling friendly
- Non-polluting
- Energy efficient
- Tailored Functionality

Source: Dr. Ramani Narayan, Michigan State University
Packaging Goals

Packaging Goals (The 7 R’s)

- Remove
- Reduce
- Reuse
- Recycle
- Renew
- Revenue
- Read – Learn About Sustainability

Packaging Scorecard Metrics

- GHG/CO²
- Transportation
- Cube utilization
- Renewable energy
- Product/Package
- Recovery Value
- Material H & S
- Recycled Content
- Innovation
Sustainable Paperboard Packaging The ITC Way

Sustainable Packaging - Key Parameters

1. Raw material source
2. Production Technology
3. Energy & Water
4. Designed holistically with the product
5. Post use recovery

The ITC Way

1. Responsibly managed plantations
2. Clean manufacturing and effluent treatment processes
3. Alternative energy sources
4. Customer - Collaborative approach to design
5. Collection and Recycling
6. Measuring and Reporting
Social Forestry

Saplings provided free of cost to small tribal farmers

Wood bought back by ITC at prevalent market rates.

Includes 18% of the total plantation cover.

Farm Forestry

Saplings sold to large farmers who own lands.

Wood bought back by ITC at prevalent market rates.

Includes 82% of the total plantation cover.

1,42,000 Hectares covered as on 31st March 2013
The Rainforest Alliance

ITC LIMITED - PSPD UNIT BHADRACHALAM
SARAPAKA - 507 128 KHAMMAM DISTRICT
ANDHRRA PRADHER
INDIA

IS CERTIFIED FOR FOREST STEWARDSHIP COUNCIL
FOREST MANAGEMENT AND CHAIN-OF-CUSTODY

Certificate Scope
Certificate Type: Group Forest Management and Chain-of-Custody
Standard(s): FSC-STD-450-005 V1-0, SW-IRRM Standard for Assessing Forest Management in India version September 2011
Product group(s): Logs
Valid from February 22, 2012 to February 21, 2017
Certificate Registration Code: SW-FM/COC-005808
FSC License Code: FSC-C102390
Certificate Issue Number: IN-2012-1

As a group certificate, the activities and products included in the scope of this certificate are performed by a network of participating group members. Additional details regarding the scope, including a full list of products and species, are available at info.fsc.org.

Jon Jickling, Director
SmartWood Program of the Rainforest Alliance
65 Milled Street, Suite 201, Richmond, Vermont, USA 05477

RAINFOREST ALLIANCE IS AN ACCREDITED FSC CERTIFICATION BODY
The validity of this certificate shall be verified on info.fsc.org. This certificate does not constitute evidence that a particular product supplied by the certificate holder is FSC certified and/or FSC Controlled Wood. Products offered, shipped or sold by the certificate holder can only be certified covered by the scope of this certificate when the required FSC claim is clearly stated on invoices and shipping documents.
This certificate is the property of the SmartWood Program of the Rainforest Alliance. This certificate and all copies or reproductions of this certificate shall be returned or destroyed if requested by SmartWood.

FSC

Responsibly Managed Plantations...

- Forest Stewardship Council (FSC) is an NGO established to promote the responsible management of the world’s forests.
- FSC has become the international standard for fiber sourcing.
- All our Units have FSC Chain of Custody certification and 8000 Ha of plantations have been certified under FSC – Forest Management. Another 15,000 Ha are being added this year.
Clean Processes...

• Pulp bleaching process – Elemental Chlorine free technology: most prevalent and mandated by law – Implemented by ITC before regulation

• Ozone Bleaching: currently being used by ITC

• Continuous technology improvements to reduce specific consumption figures for water and energy.
Clean Processes - Unit Bhadradachalam

**CO2 Emissions in tons / ton of output**

<table>
<thead>
<tr>
<th>Year</th>
<th>09-10</th>
<th>10-11</th>
<th>11-12</th>
<th>12-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emissions</td>
<td>2.5</td>
<td>2.4</td>
<td>2.02</td>
<td>1.7</td>
</tr>
</tbody>
</table>

**Specific Energy Consumption in GJ / ton of output**

<table>
<thead>
<tr>
<th>Year</th>
<th>09-10</th>
<th>10-11</th>
<th>11-12</th>
<th>12-13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>37.4</td>
<td>37.7</td>
<td>33.2</td>
<td>33.9</td>
</tr>
</tbody>
</table>
Clean Processes ...

- Normalised Production
- Fresh Water Intake

<table>
<thead>
<tr>
<th>Year</th>
<th>Normalised Production</th>
<th>Fresh Water Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>09-10</td>
<td>290</td>
<td>119</td>
</tr>
<tr>
<td>10-11</td>
<td>300</td>
<td>115</td>
</tr>
<tr>
<td>11-12</td>
<td>310</td>
<td>113</td>
</tr>
<tr>
<td>12-13</td>
<td>329</td>
<td>115</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Effluent in KL / Ton of output</th>
</tr>
</thead>
<tbody>
<tr>
<td>09-10</td>
<td>48</td>
</tr>
<tr>
<td>10-11</td>
<td>44.9</td>
</tr>
<tr>
<td>11-12</td>
<td>45</td>
</tr>
<tr>
<td>12-13</td>
<td>43.4</td>
</tr>
</tbody>
</table>
Renewable Energy

• Biofuels fired green boilers

• Wind Energy generation of 7.5MW in Unit Kovai (11-12) and a 46 MW plant planned in Anantapur, AP (14-15)

• Printing and Packaging business has commissioned a 14.1 MW wind energy plant in Chennai (11-12)

• In 2012-13, 48% of the Paperboards & Specialty Papers Division’s energy requirement was generated from renewable sources

• By 2014-15 this is expected to touch 52%
Customer collaborative approach – few case studies

**FMCG CARTON**

Substance Reduction across five years:

- Small SKUs: 12%
- Mid SKUs: 16%
- Large SKUs: 13%

No damages reported and current market share > 50%

**BEVERAGE PACKAGING**

- Started with Information exchange on all KPIs, leading to
- Substance Reduction by 10% on all SKUs
- Optimised Loads – reduced CO2 emissions
- Commenced supplies of FSC certified boards from this quarter
LEADING PHARMACEUTICAL COMPANY

• The Manufacturer sought to reduce specific emissions attributable to their packaging.

• Packaging substrate based emissions calculated and matched to product needs

MOBILE PHONE CARTONS

• 95% packaging from renewable, paper-based materials, 60% recycled content.

• Cartons – rightsized and transport vehicles cut down to half in 60% deliveries.
Innovations ( working on )

• Barrier Boards – Paperboards laminated or extrusion coated with fossil based polymers for heat sealability, moisture / grease resistance

• On disposal the polymers do not degrade and the substrate cannot be easily recycled leading to landfills

• Working on – Bio based and dispersion coated barriers
  • Bio based – both the paperboard and the bio based barrier will degrade in a composting environment
  • Dispersion Coatings – Paperboards with dispersion coatings can be processed in existing recycling mechanisms and the recovered fiber can be used for paper making
Paper cups with bio based coatings – stages of composting

Stages of Biodegradable cups composting

Source: Harita NTI
End of Life Disposal

- Waste Management
  - The Wealth out of Waste program is our initiative to share good practices in efficient waste management, source segregation and recycling with households, schools and corporate bodies.
  - WOW collects and recycles about 3000 Tons per month of waste today. A recent initiative in schools in A.P to exchange waste paper for brand new ITC stationery was a grand success!
  - Current waste paper recovery rate in India is low at 20%
  - Working on Private-Public partnerships in monetizing and expanding the recovery market. Ex. Hyderabad & Bangalore municipalities
Measuring & Reporting

• **Companywide** – Sustainability Report – Global Reporting Initiative – G 3 at the highest compliance application level of A+

  • The 2012 report is the 9th consecutive year of reporting

• **Unitwise** – Unit Bhadrachalam of the Paperboards and Specialty Papers Division is the largest integrated paperboard manufacturer in the country

  • Only unit in the industry to be “Greenco Gold” rated
• Green certifications and labeling is rated 4th in the consumer purchase decision!

• 45% consumers felt that green awareness has increased substantially over the past five years and 78% feel it will become increasingly prominent over 2015

• Sustainability initiatives till now are mainly industry driven, but a clear change is visible, where customers are demanding a ‘greener’ supplier
## Ten tips for sustainable package design

1. **Take a Life Cycle Approach to packaging design**
2. **Evaluate each component of the package**
3. **Consider new alternatives for distribution packaging**
4. **Explore re-usability**
5. **Explore Product changes**
6. **Whenever possible design for recyclability**
7. **Package in a manner that encourages full product consumption**
8. **Know the source of your packaging materials**
9. **Evaluate the distribution system for space saving opportunities**
10. **Consider materials made from renewable sources**
Thank You
Email: sn.venky@itc.in