

**Forest Products  
Association of Canada**

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**Environmental  
Implications of Media**

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# Outline

- Context
- New approach
- Project
- LCA
- Next steps

# Context

- Going digital has become shorthand for going green and corollary that paper is less green
  - E-media has an environmental footprint
  - Many claims about relative greenness of e-media made without evidence
  - Many shifts to e-media made for preference / convenience
  - Lack of awareness that the answer is not that simple and many not engaged in the discussion
- Too little attention on improving sustainability of how to buy, use and dispose both electronic and paper media

# Context

## Paper and e-media

- Both are going to continue to be used
  - Complements, not just substitutes
- Both have an environmental footprint
- Both need to continue to improve footprint along the value chain

# Context

- Forest products companies very interested and engaged on this topic
- Part of telling our story
  - What the industry has done to improve sustainability of its operations and products
  - What it's continuing to do to improve
- Opportunity to reinforce the importance of responsible procurement
  - Choose suppliers who harvest legally, regenerate promptly, reduce waste and promote recycling, reduce GHG, and are open to public scrutiny

# Functionality

- While both media have similar functionality, their differences can be complementary
  - E.g. Read paper newspaper or magazine, and then go online to get more information
- Each has unique functionality
  - E-media devices many different uses – social media, music, videos, pictures, gps, etc.
  - Paper media – has some secondary functions but mainly reading, sharing and storing information
- Paper is still an effective media choice
  - Continued demand
  - Surveys showing effectiveness and credibility of paper media

# Paper and E-media Footprints

## **E-media footprint is more challenging to analyze**

- More complex supply chain
- More types of raw materials
- More rapid product evolution
- More supporting infrastructure
- More diverse functionality, use profiles and end-of-life practices

# Footprint profiles

## E-MEDIA

## PAPER

### Raw materials

Majority is mined and non renewable

Majority is renewable

### Processing & Production

Water, energy and chemically intensive

Water and energy intensive  
Growing eco-efficiency -analysis complexity

### Use

Energy for use, Internet and the “cloud”

No energy for use; can be shared

### End of Life and Recycling

Recovery is limited, expensive, toxic and highly variable

Well established & economic recovery and recycling infrastructure

### Data availability

Limited

Widely studied

# “it depends”

- People want simple answer, not looking for an answer of “it depends”
- Going digital thought to be a simple choice – hard to communicate otherwise
- Tend to tell a long story, but how about coming at it differently?

# New Approach

## Popularized thought process

Decide to be greener

Move from paper to digital

May or may not consider how to reduce footprint

## Recommended thought process

Decide to be greener

Determine needed functionality and choose one or both media types

Questions to source & use responsibly and manage end of life

# Ideal world – Informed and Responsible Choices

- Decisions on which or both to use based on functionality required
- Then choose specific products and suppliers that meet sustainability & transparency criteria, and strive for continual improvement
- Reduce guilt about responsible use of paper or responsible use of e-media

# Project

- Want to engage in informed discussion
- Opportunity to communicate how both media can be part of a sustainable communication mix
- AF&PA share same interest, therefore collaboration
- Explore project opportunities

# Project

## How to engage the discussion?

- Need meaningful data and analysis
  - Look for comprehensive approaches, holistic view of entire supply chain, cradle-to-grave
  - Most have approached using LCA's
  - However, lack of good data and analysis for e-media and for comparisons

# Project

## Response from existing data and analysis tends to be based on existing viewpoints

- Head nodding from those who share the views of the study author
- Received cynically by those opposed
- Adds to the data overload of those who are undecided
- Those new to the data tend to be influenced by the data and analysis they hear first

# Project

## **Need for new analysis and new communication approaches**

- LCA is a powerful analysis tool in many applications
- However in the context of the broader paper and e-media discussion, comparative LCA's tell narrow slices of the story
- Have to look for new approaches to add

# Project

- Review challenge with National Council for Air and Stream Improvement (NCASI) and others
- Start with a scientific literature review by Bull & Bull at University of British Columbia (UBC) to better understand the gaps and issues
- Determine next steps

# LCA Overview

**Need to understand LCA, since used for much of the existing analysis**

- Goal and scope definition
- Life cycle inventory
- Life cycle impact assessment
- Life cycle interpretation

# LCA Considerations

- Requires a large and wide range of data
  - Challenges with obtaining data on electronic devices
- Very hard to generalize results from a single LCA when manufacturing, use, functionality, end of life, etc. variations are large
  - Could conduct numerous LCA's to map a wide range
    - impractical, time-consuming, expensive
- Company specific v. industry data
  - Company specific data is more accurate, but a challenge to generalize results

# LCA Considerations

- Spatial variation
  - Emissions and impacts occur over a large time frame – depending on location may have local, regional or global reach
  - Both industries have global supply chains
- Local environment uniqueness
  - Significant impact on results depending on location of the materials extraction, production, distribution, use and end-of-life
- Can do an LCA on one product or compare two products but results only apply elsewhere with shared assumptions
  - Depending on the functionality chosen and the boundary conditions, either can have better results

# Power of Assumptions

- Two comparative LCAs on books and e-alternatives
- Kozak<sup>1</sup>
  - E-Reader is seen as superior from environmental perspective
  - 40 textbooks for a college student, not resold
  - 1/4 of global warming potential from driving to bookstore
- Enroth<sup>2</sup>
  - Textbook is 10 to 30 times better than Laptop/PC for global warming potential
  - Textbooks for schoolchildren that are reused five times

1 Kozak, G., 2003. Printed Scholarly Books and E-book Reading Devices: A Comparative Life Cycle Assessment of Two Book Options.

2 Enroth, M., 2009. Environmental impact of printed and electronic teaching aids, a screening study focusing on fossil carbon dioxide emissions. *Advances in Printing and Media Technology*, 36, 1-9.

# Power of Assumptions<sup>1</sup>

- Opposite conclusions from two comparative LCAs on books and e-alternative, due to assumptions
  - Modeling personal transportation drives Kozak study findings (eight 10 mile trips v. none)
    - When Kozak removes personal transportation variable, it only takes 3 readers per book to make paper the environmentally preferable option
  - Number of users per book drives Enroth study findings ( one v. five)

# Next steps

## Assess what information and analysis would:

- Enhance the discussion towards a new approach
  - Decide to be greener
  - Determine functionality desired, and choose one or both media types
  - Ask key questions to source responsibly, use responsibly and manage end-of-life
- Enhance opportunities for both e-media and paper to improve
  - Transparent and measured supply chain
  - Identify and address opportunities for reducing environmental footprint
  - R&D for more eco-efficient technologies
  - End-of-life strategies that maximize recovery and reduce impacts

# Next steps

- Apply a holistic approach and life cycle thinking
- Type of tools to consider
  - Industrial ecology
  - Supply Chain Assessment<sup>1</sup>
  - Natural Step<sup>2</sup>
  - Others