



**SUSTAINABLE PACKAGING**  
COALITION

## **Trends and Initiatives Influencing Sustainability and Packaging**

Anne Johnson

*Stewardship Ontario's 2011*

*Sustainable Packaging Summit*

Toronto - June 21, 2011

# GreenBlue

**GreenBlue is a nonprofit that equips business with the science and resources to make products more sustainable**

**501(c)(3) not for profit**

**Founded in 2003**

**21 employees**

**Charlottesville, VA**

**Program Areas**

**PACKAGING**

**FOREST PRODUCTS**

**CHEMICALS**

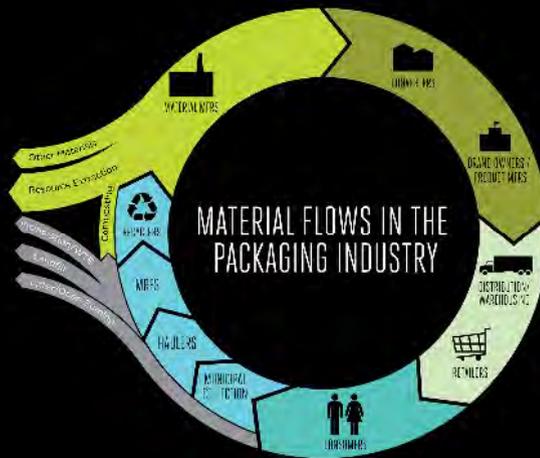
**ADVISORY SERVICES**

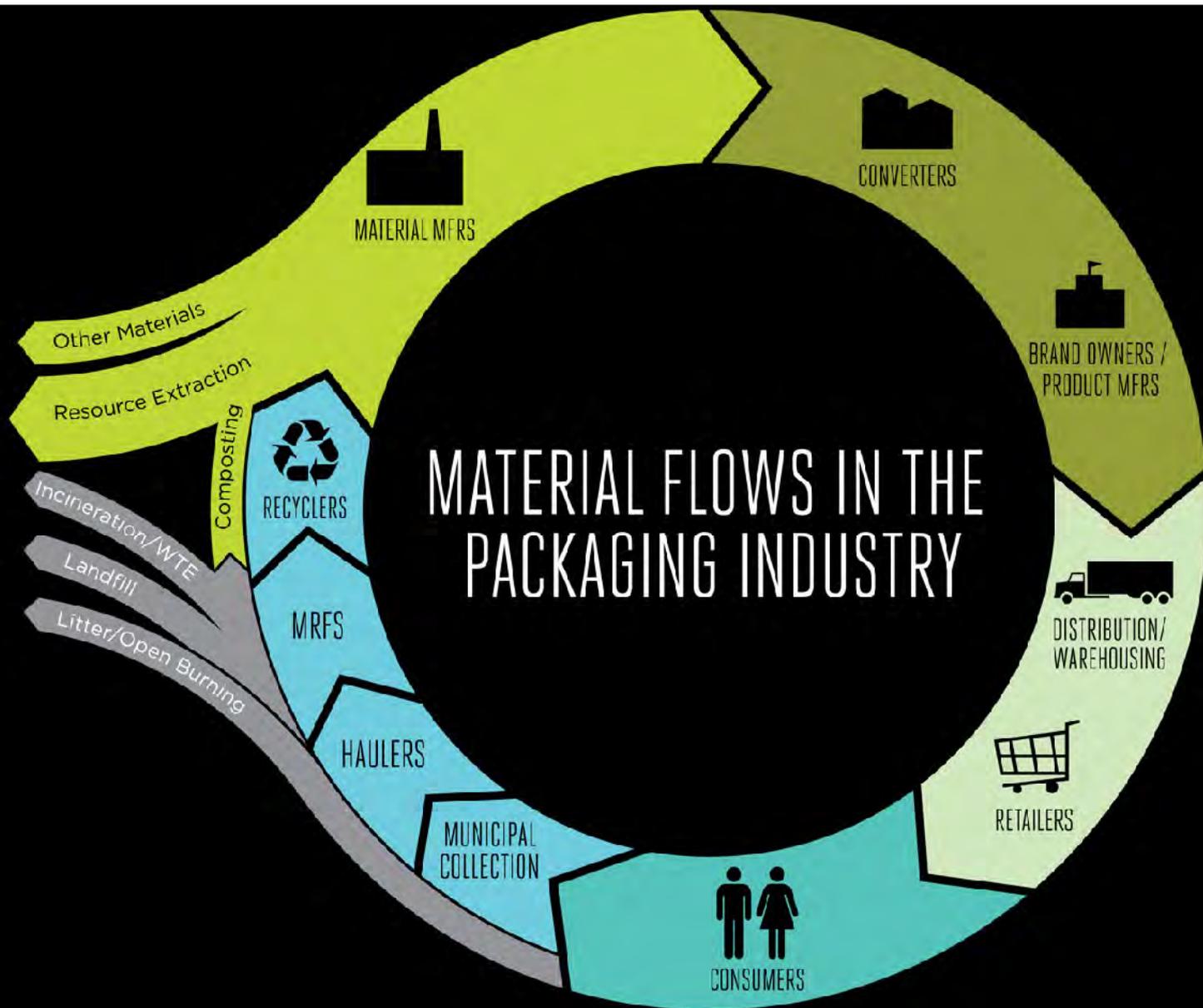
# Our Approach

- Science based research and inquiry
- Understanding systems and sustainability issues
- Promoting life cycle thinking
- Facilitating collaboration and connecting non-traditional partners
- Connecting the business case to technical and environmental issues
- Advancing education, information resources and tools

# Sustainable Packaging Coalition

- Industry working group
- Inspired by a vision of effective recovery for all packaging through better packaging and system design
- Working to increase understanding of sustainability issues related to packaging through education
- Developing tools and resources to facilitate more sustainable packaging solutions and systems





© GreenBlue

# SPC Definition of Sustainable Packaging



Is beneficial, safe & healthy for individuals and communities throughout its life cycle;



Is physically designed to optimize materials and energy;



Meets market criteria for both performance and cost;



Optimizes the use of renewable or recycled source materials;



Is sourced, manufactured, transported, and recycled using renewable energy;



Is manufactured using clean production technologies and best practices;

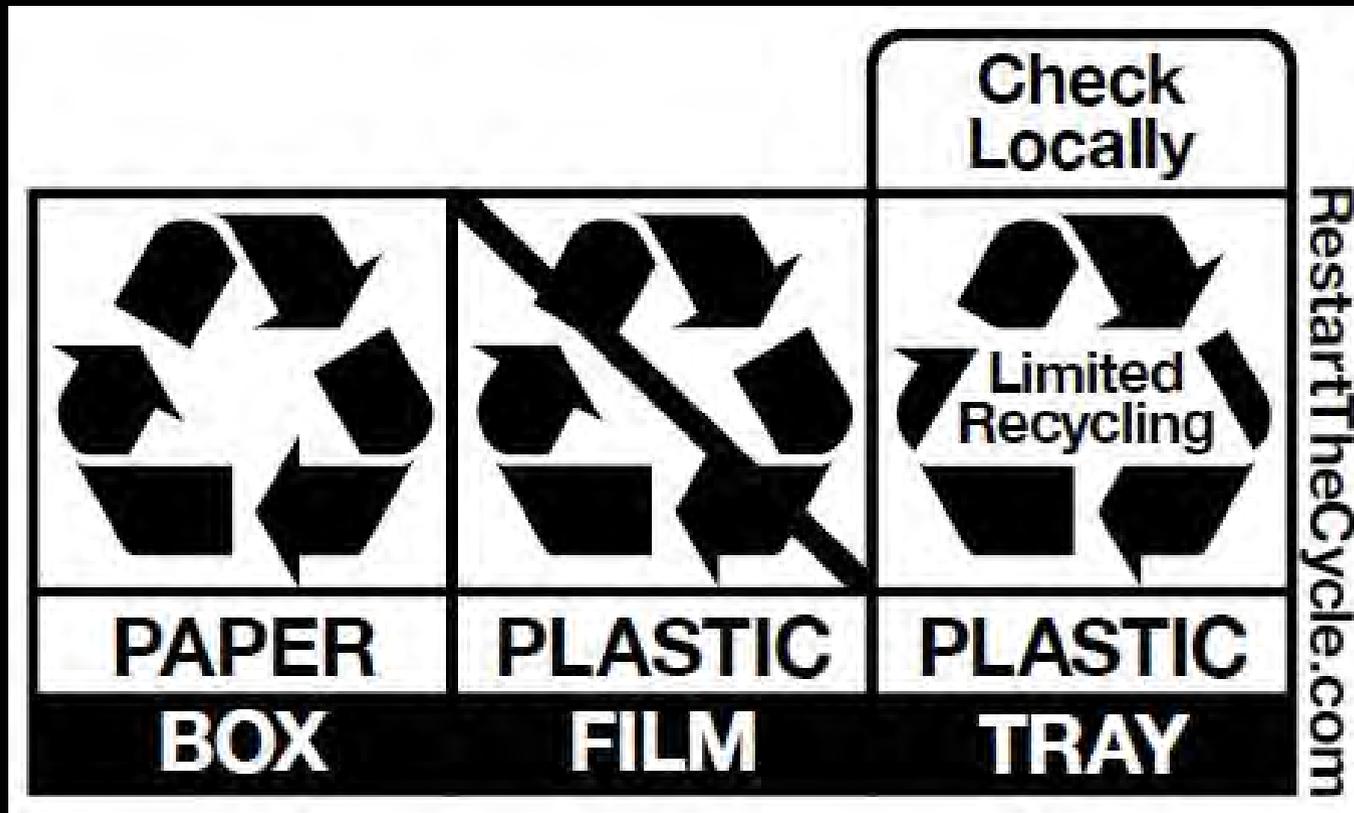


Is made from materials healthy in all probable end of life scenarios;



Is effectively recovered and utilized in biological and/or industrial closed loop cycles.

# SPC: Labeling for Recycling



>60% Reach

<20% Reach

20 %– 60% Reach

# Issues Influencing Packaging



# Packaging as Waste



Source: Sarah Simpson, The Christian Science Monitor (www.csmonitor.com), 11/31/07. All Rights Reserved.

# Marine Debris



## Santa Monica beach

On left: after storm drains were flushed by a major rain. On right: a normal day in Santa Monica. Source: <http://www.calpsc.org/products/packaging.html>

# Important Trends in North America

- 2008 Growing focus on life cycle analysis
- 2009 Sustainability Consortium launches  
State EPR initiatives
- 2010 EPA Sustainable Financing for Municipal Recycling
- 2011 Sustainability Consortium Packaging Work Group  
Ameripen

# Important Trends Internationally

- 2008 Consumer Goods Forum  
Global Packaging Project :  
“Global Protocol on Packaging Sustainability 2.0”
- 2009 ISO TC 122/ESC Environment and Packaging
- 2010 OECD Sustainable Materials Management
- 2011 Emerging Markets

# GPP: Economic and Social Metrics

ECONOMIC & SOCIAL ATTRIBUTES	
ECONOMIC	
Total Cost of Packaging	Packaged Product Wastage
SOCIAL	
Packaged Product Shelf-Life	Community Investment
CORPORATE PERFORMANCE CHECKLIST	
ENVIRONMENT	
Environmental Management System	Energy Audits
SOCIAL	
Child Labor	Freedom of Association and/or Collective Bargaining
Excessive Working Hours	Occupational Health
Responsible Workplace Practices	Discrimination
Forced or Compulsory Labor	Safety Performance Standards
Remuneration	

# GPP: Environmental Metrics

## ENVIRONMENTAL ATTRIBUTES & LIFE CYCLE INDICATORS

### ATTRIBUTES

Packaging Weight and Minimization	Assessment and Minimization of Substances Hazardous to the Environment
Packaging to Product Weight Ratio	Production Sites Located in Areas with Conditions of Water Stress or Scarcity
Material Waste	Packaging Reuse Rate
Recycled Content	Packaging Recovery Rate
Renewable Content	Cube Utilization
Chain of Custody	

### LIFE CYCLE INDICATORS – INVENTORY

Cumulative Energy Demand	Land Use
Fresh Water Consumption	

### LIFE CYCLE INDICATORS – IMPACT CATEGORIES

Global Warming Potential	Photochemical ozone creation potential (POCP)
Ozone Depletion	Acidification Potential
Toxicity, Cancer	Aquatic Eutrophication
Toxicity, Non cancer	Freshwater Ecotoxicity Potential
Particulate Respiratory Effects	Non-renewable Resource Depletion
Ionizing Radiation (Human)	

**Slide 14**

---

**AJ1**

Anne Johnson, 6/20/2011

# GPP: Attribute Metric Format

## Recycled Content

### Definition

The ratio of recycled material (post-consumer and pre-consumer as defined by ISO 14021) to total material used in packaging constituents, packaging components, or packaging systems.

### Metric

Percent recycled material of total quantity of material used per packaging constituent, packaging component or packaging system. Pre-consumer and post-consumer recycled content can be calculated separately to provide a greater level of detail

### Examples

- % recycled content / FU

### What to Measure

Measure post-consumer recycled material and pre-consumer as per ISO 14021. For additional guidance, refer to ISO 14021.

### What Not to Measure

N/A

# GPP: LCA Indicator Format

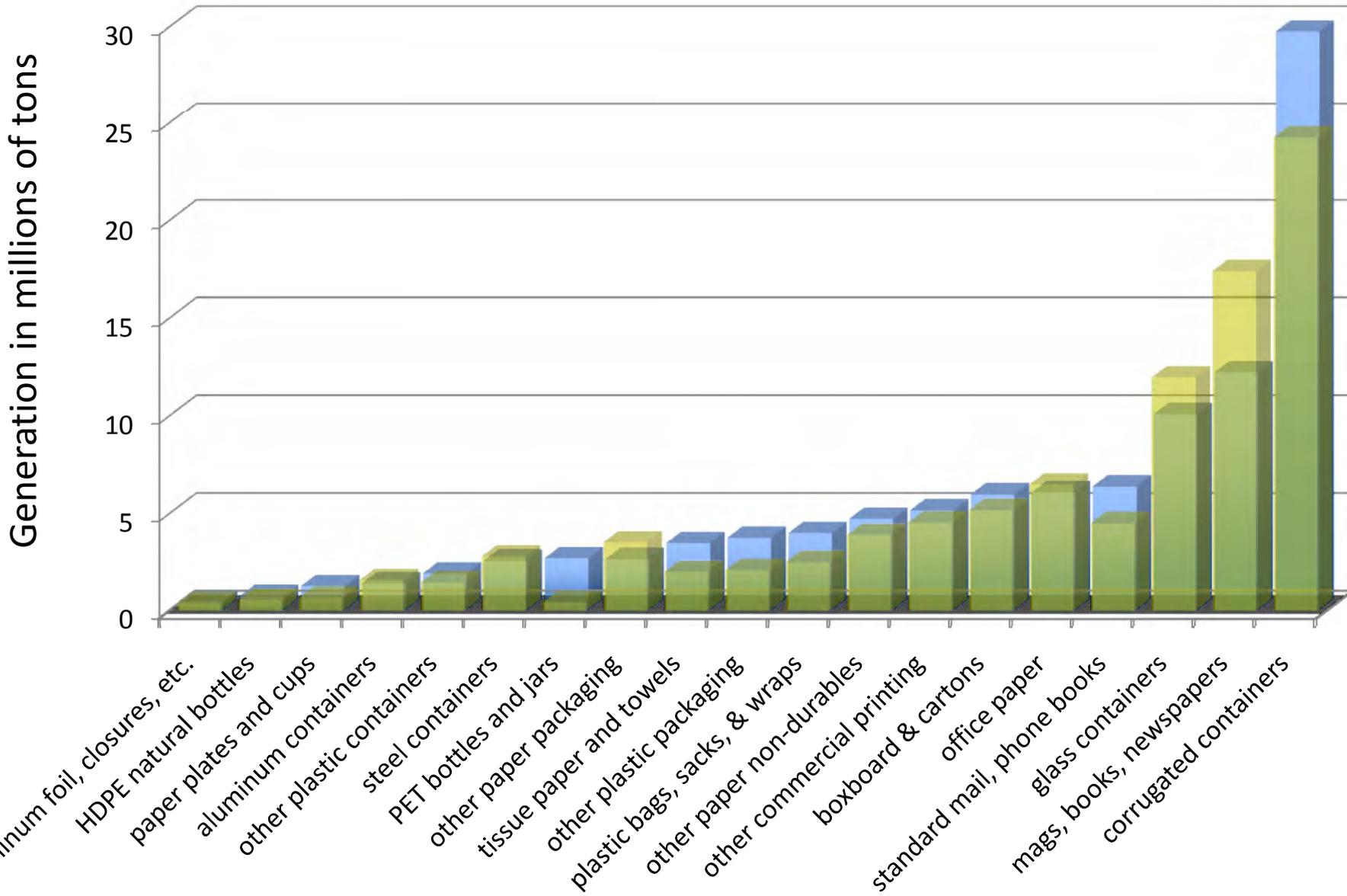
1. Definition
2. Metric
3. Who/What at the end am I damaging?
4. How does it damage?
5. Why does it matter?
6. What do I have to check,take into account in my supply chain?
7. When do I have to use/select/consider this indicator?
8. How specifically can I intepret the resulting indicator?
9. How can I reduce uncertainty and evaluate the significance of an impact?
10. Who to ask and where to look?

# Overview of Trends Influencing Packaging

- Companies are responding to persistent and strong consumer association of packaging with waste and environmental impact
- Many companies taking positions on “renewable materials” and recycled content
- Increasing focus on packaging recovery and companies are looking for solutions
- More resource and cost efficient packaging tends towards non-recyclable, multi-laminant films
- Biodegradation is perceived as a solution and a marketing opportunity

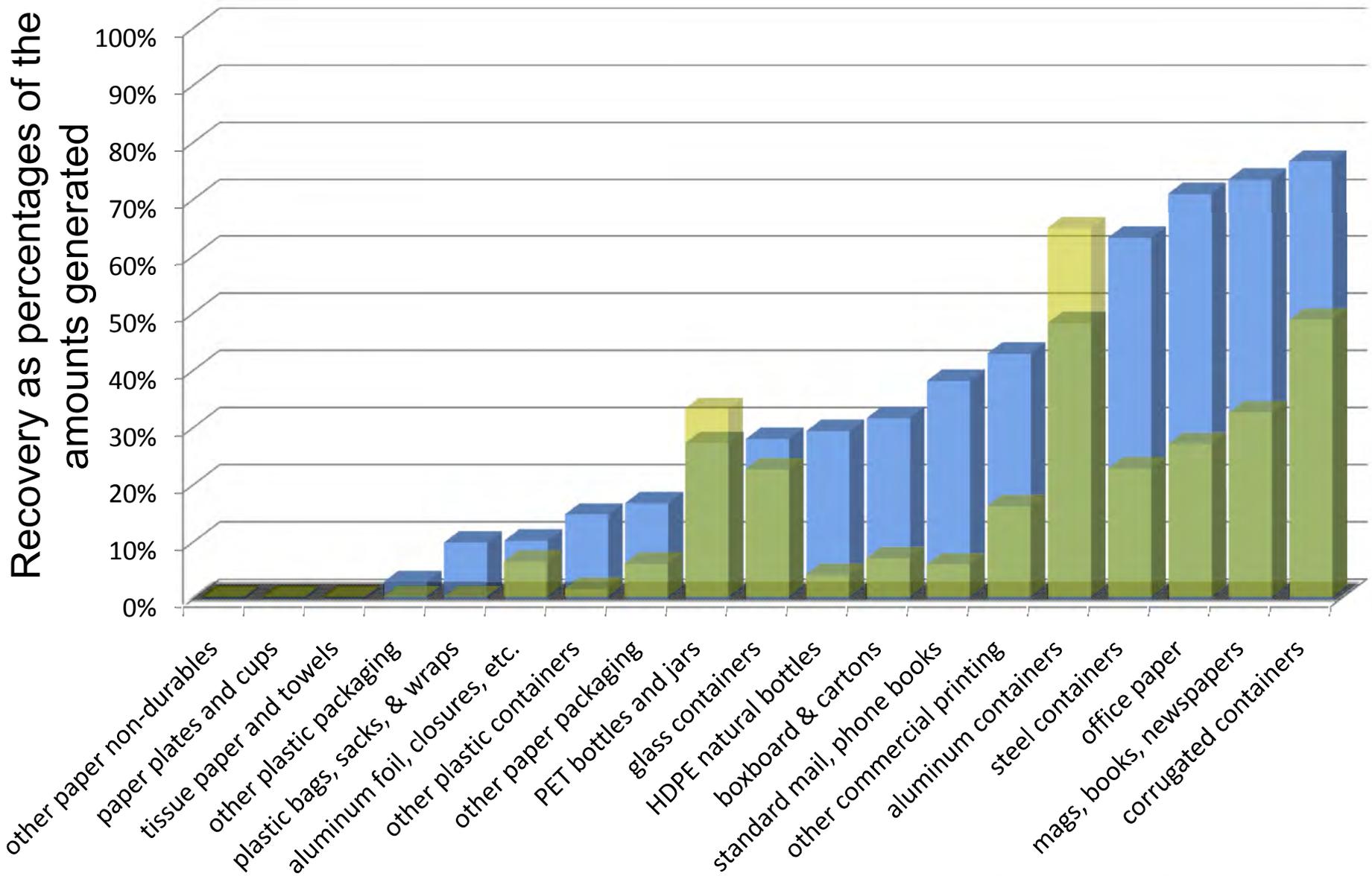
**How has paper and packaging waste  
and recycling changed over time in  
the U.S.?**

# Packaging/paper generation between 1990 and 2008



Source: USEPA MSW Facts and Figures

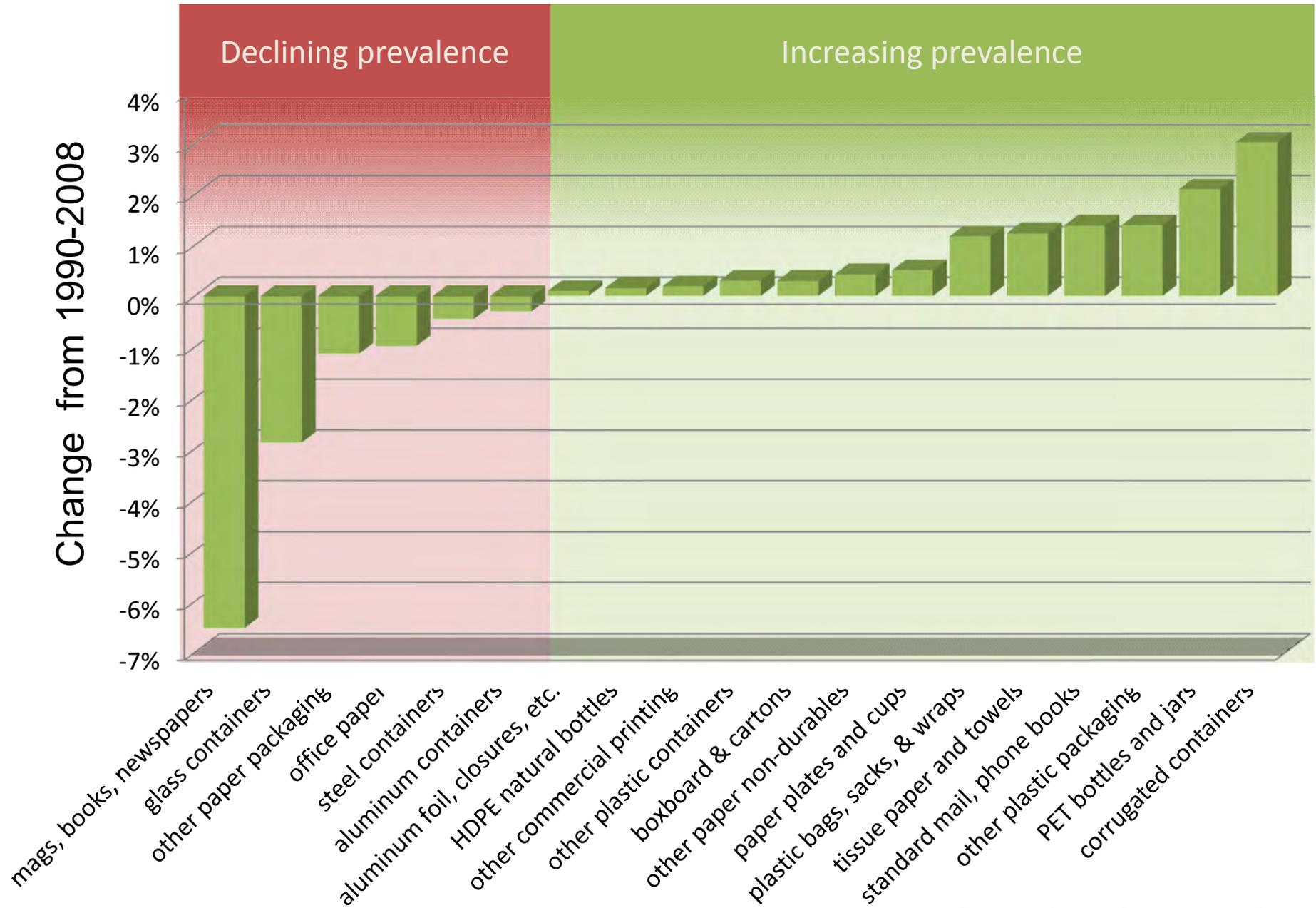
# Recycling rate changes between 1990 and 2008



Source: USEPA MSW Facts and Figures

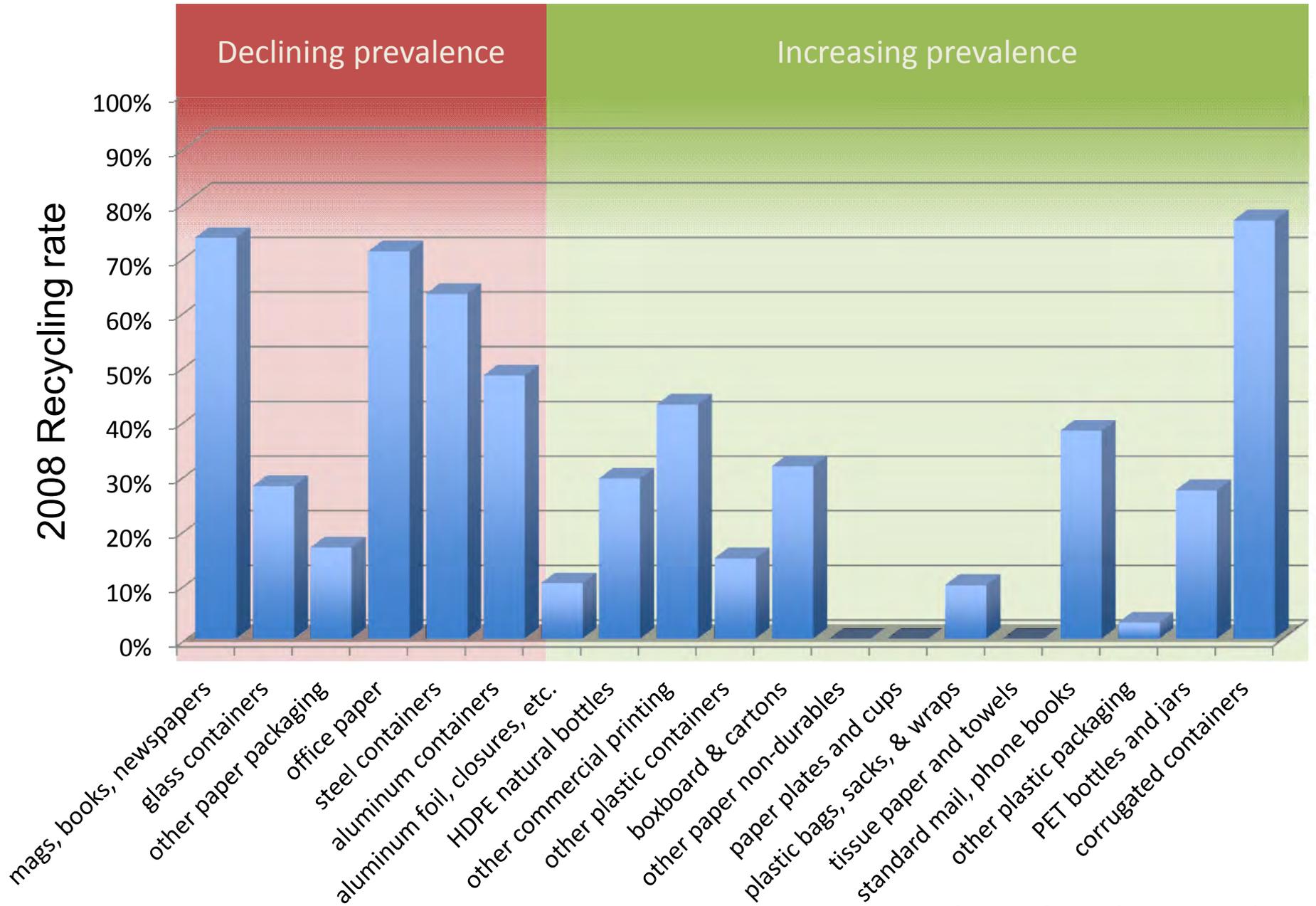
**What materials and packaging  
and paper formats are  
increasing or decreasing?**

# Paper/packaging material and format trends



Source: USEPA MSW Facts and Figures

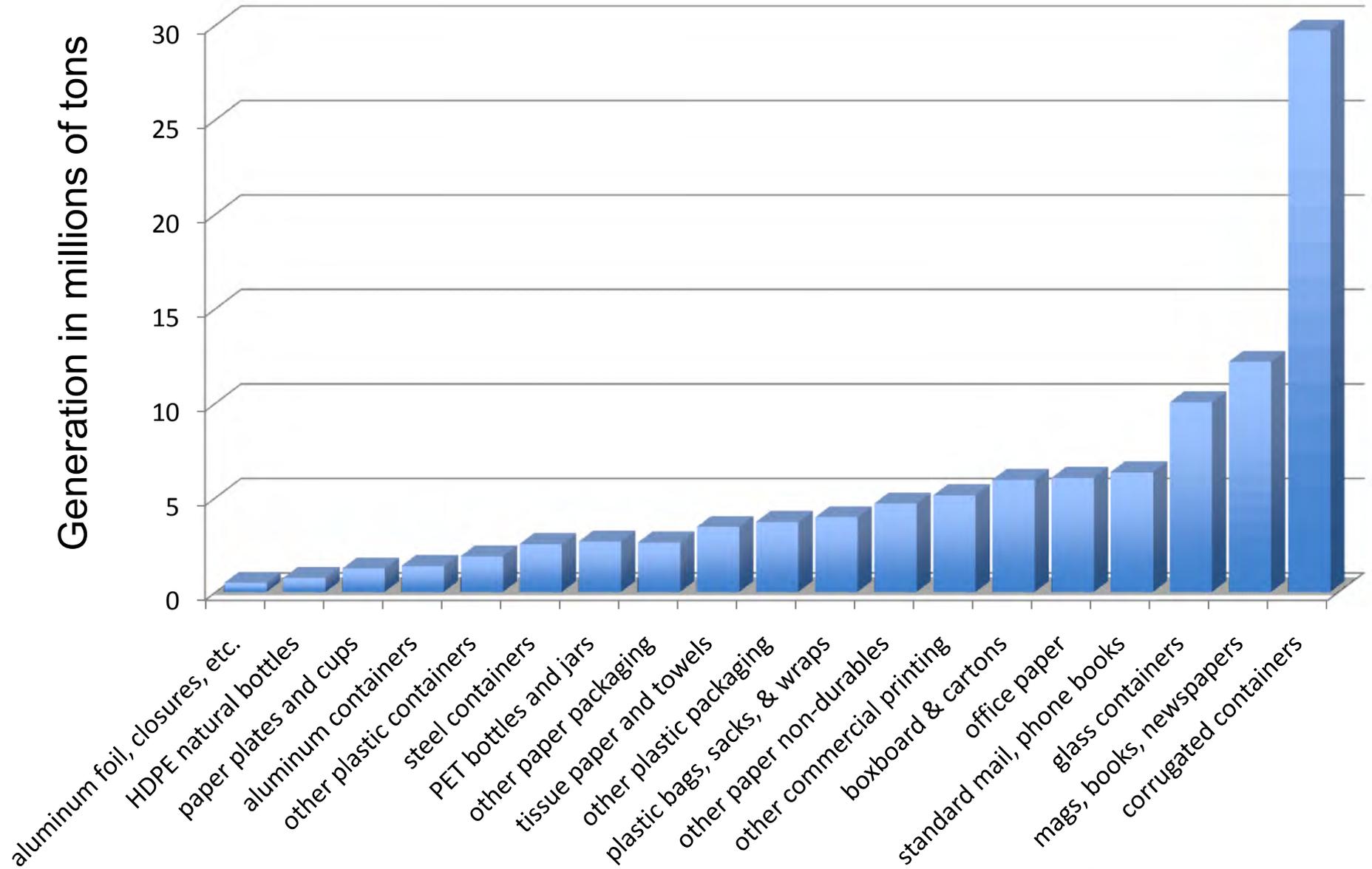
# Recycling rate over material/format trends



Source: USEPA MSW Facts and Figures

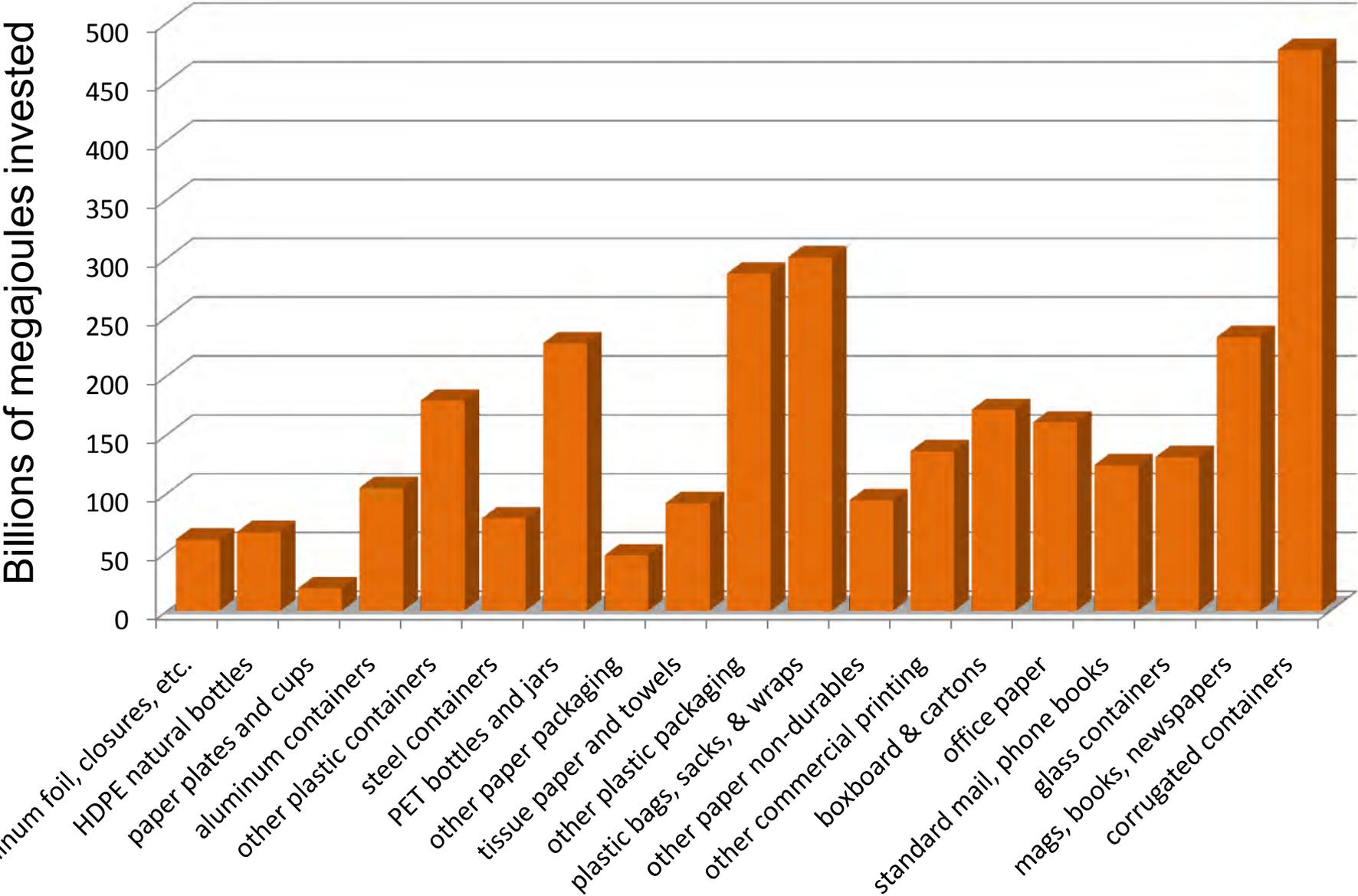
**How does the significance of paper and packaging formats change with environmental parameter?**

# 2008 generation of paper/packaging recyclables millions of tons



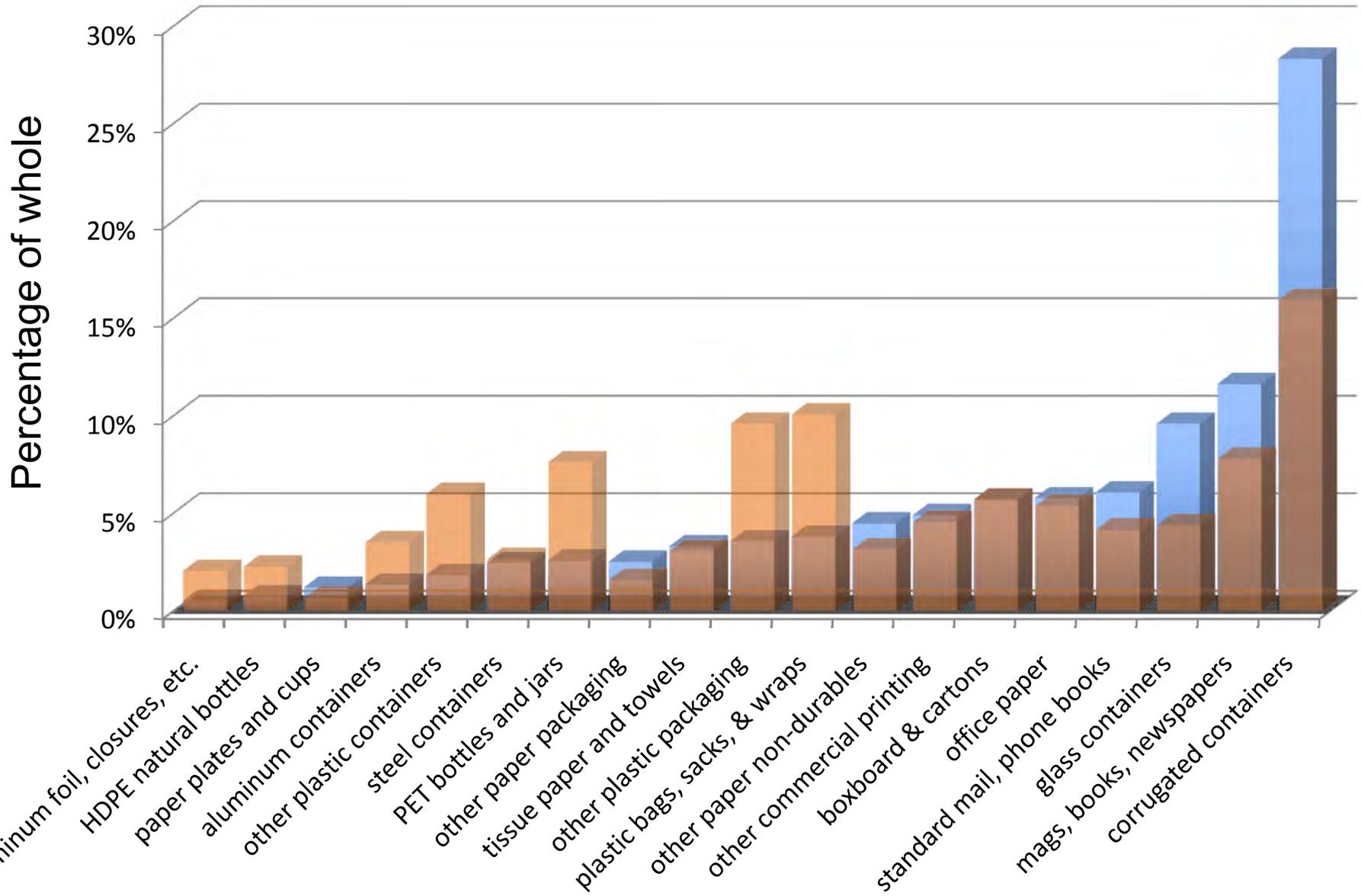
Source: USEPA MSW Facts and Figures

# 2008 generation of recyclables by fossil fuel billions of megajoules

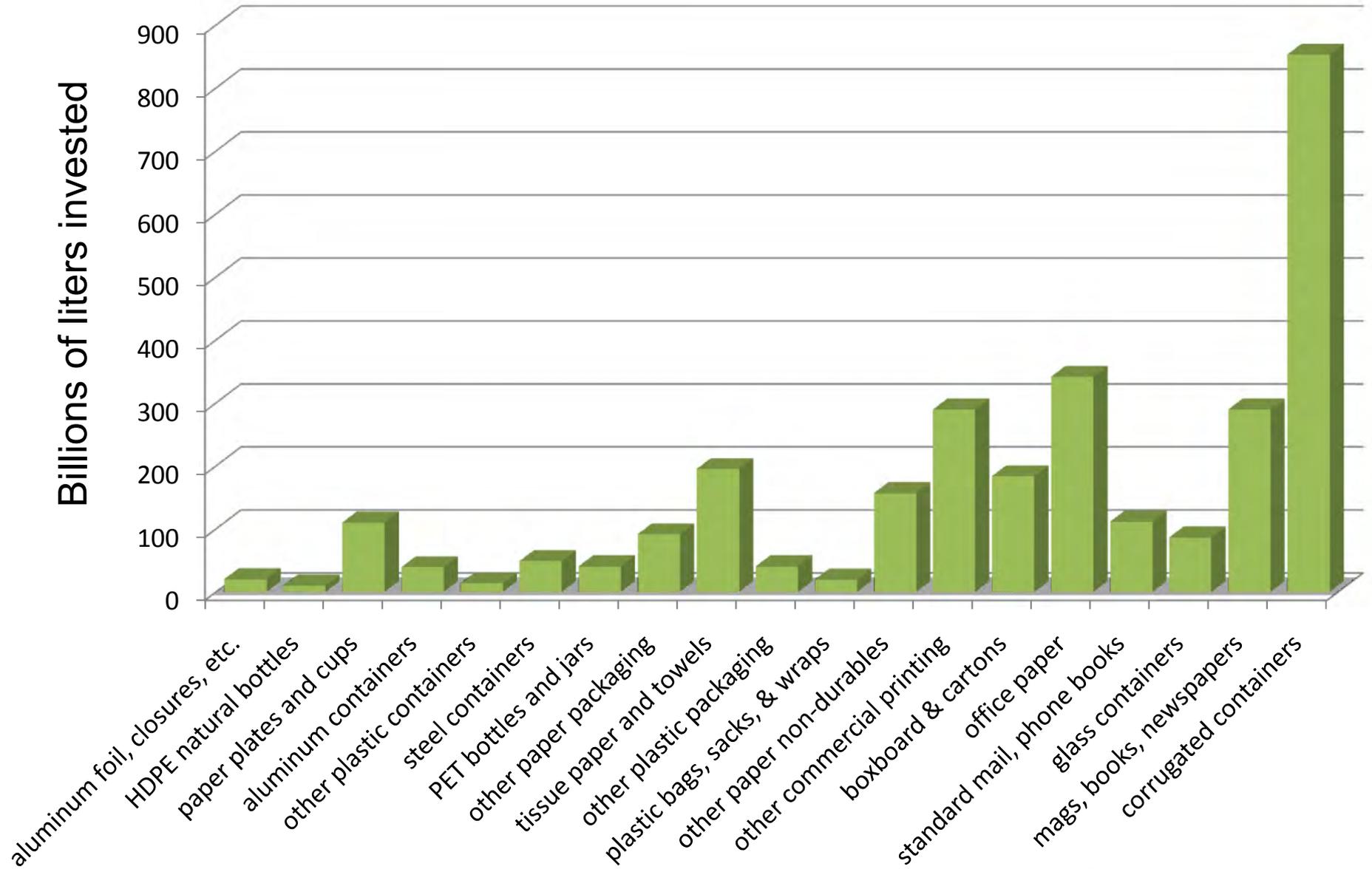


Source: USEPA MSW Facts and Figures

# Recyclables by weight and invested fossil fuel normalized to percent

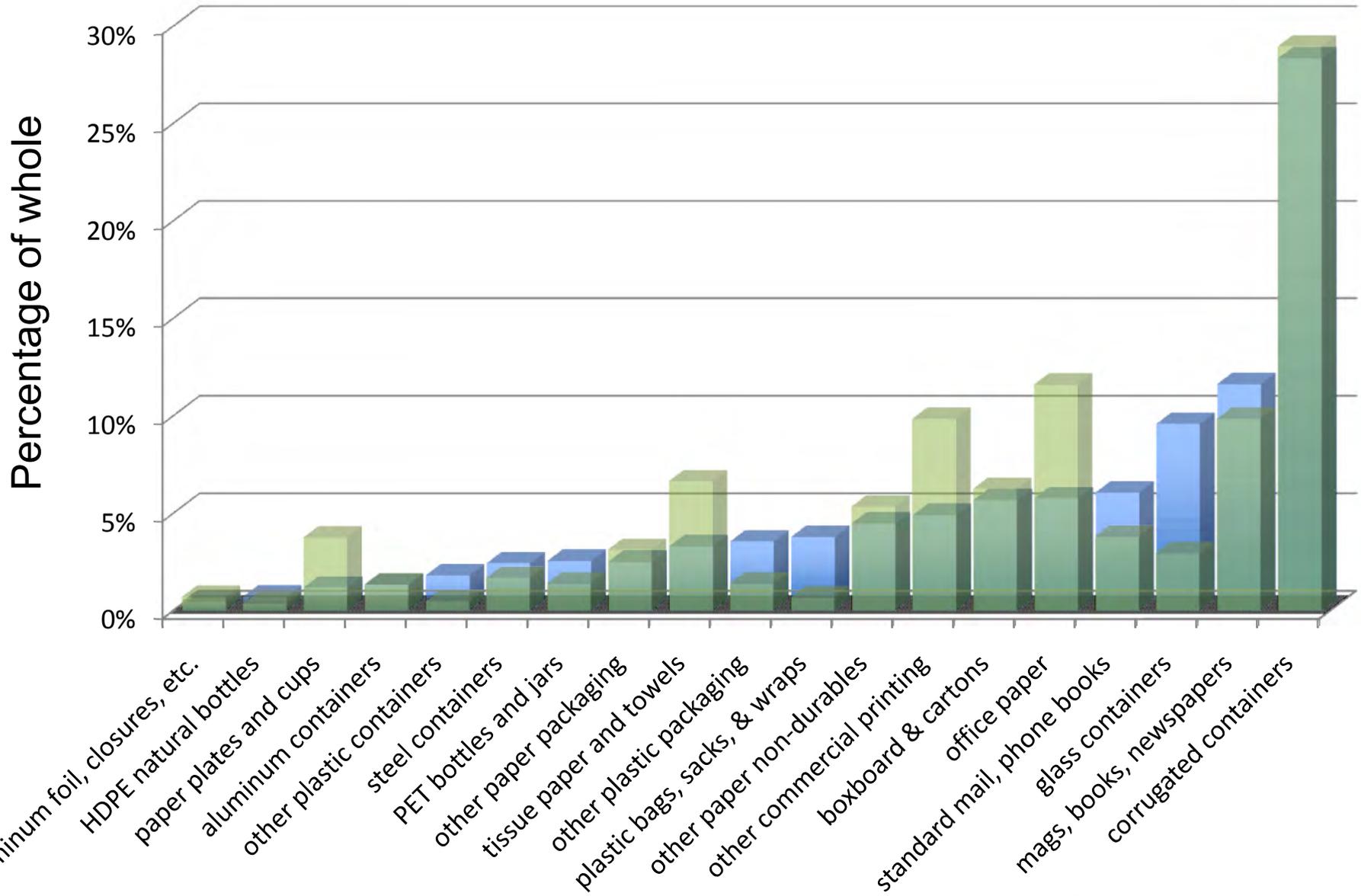


# 2008 generation of paper/packaging recyclables billions of liters



Source: USEPA MSW Facts and Figures

# Recyclables by weight and invested water normalized to percent



Source: USEPA MSW Facts and Figures

# Extended Producer Responsibility for Packaging

- Drivers and political climate
- Industry experience
- What needs to happen
  - Optimize the system we have today
  - Develop a common vision for the future
  - Identify what need to be harmonized within legislation
  - Programmatic implementation need to be flexible

# Some Closing Thoughts

- Life cycle analysis is becoming a dominant approach despite significant weaknesses
  - Data uncertainty leads to output uncertainty
  - Data underdeveloped, not standardized and difficult to collect
  - Disconnect between product level LCA and sustainable materials management objectives
  - Important to develop complete and high quality benchmark data
- EPR in the U.S. is creating momentum for voluntary initiatives

**Thank you!**  
**[Anne.Johnson@Greenblue.org](mailto:Anne.Johnson@Greenblue.org)**