NEWMOA
Unlocking the Value: Transforming the Connecticut Materials Economy

CRI’s Jobs Study: Returning to Work

Susan V. Collins
Container Recycling Institute
March 22, 2012

Container Recycling Institute:
Striving to make North America a global model for the collection and quality recycling of packaging materials.
CRI’s mission is to make North America a global model for the collection and quality recycling of packaging materials. We do this by:

- Creating and maintaining a database on containers and packaging
- Studying container and packaging reuse and recycling options and legislation, including deposit systems, and their environmental and economic impacts
- Educating on recycling options for government, elected officials, for citizen groups, the print and broadcast media, publications and industry groups
- Creating national networks
Persistent Question

How many jobs would be created if we enacted a container deposit law in our state?

We had some data, but did not have an authoritative, comprehensive answer.
Figure 3. Recycling Rates of Selected Products, 2009*

*Does not include combustion (with energy recovery).

© Container Recycling Institute, 2006
Container Deposit Return Programs Result in Higher Beverage Container Recycling Rates

Average Beverage Container Recycling Rates (By Weight)

Source: CRI’s 2008 Beverage Market Data Analysis (using 2006 data)
U.S. States with Container Deposit Laws

Oregon
Vermont
Michigan
Maine
Iowa
Connecticut
Massachusetts
New York
California
Hawaii
Guam (new)
Project Background

► Conducted literature review
  ► No similar studies

► Development of performance indicators:
  ▪ weight; volume; energy savings; pollution prevention; cost; and impact on domestic jobs

► Primary research needed
  ► To understand how & why these jobs are created
  ► To provide a jobs estimate.
Project Goals

► Measure direct impacts on domestic jobs

► From increased recycling of beverage containers
  - Glass, aluminum & PET

► Compare/quantify container deposit return (CDR) programs, curbside recycling and landfill

► Create a calculator: “Measuring the Impact from Recycling on Jobs” calculator (MIRJcalc) (user inputs available)
Study Methodology

- Primary data collection – data points each for “stage”:
  1. Collection (includes transport to MRF or transfer station)
  2. Operations at MRF, transfer station or landfill
  3. Transport to landfill
  4. Secondary processing
  5. End-use manufacturing (virgin or recycled content)
  6. Raw materials extraction and refining
  7. Administration/supervision/auxiliary positions
FLOW CHART: DOMESTIC LABOR (USA) DIRECTLY RELATED TO COLLECTION OF BEVERAGE CONTAINERS FOR RECYCLING AND DISPOSAL

- **CONTAINER REDEMPTION:** Depot, RVM, Retail
- **WASTE/GARBAGE COLLECTION**
- **CURBSIDE COLLECTION:** Manual, Automated
- **LANDFILL**
- **PET RECYCLING / RECLAIMERS**
- **GLASS BENEFICIATION**
- **ALUMINUM CLEANING**

**END MARKETS/MANUFACTURERS:**
Glass Bottles; Fiberglass; Aggregate; Plastic products; Aluminum sheet

**NO IMPACT ON DOMESTIC VIRGIN ALUMINUM PRODUCERS**

**SOLD/GENERATED** (in tons)
- **AL; PET; GLASS**

**FLOW CHART:** DOMESTIC LABOR (USA) DIRECTLY RELATED TO COLLECTION OF BEVERAGE CONTAINERS FOR RECYCLING AND DISPOSAL
Model Exclusions

- Recycling-reliant employment
- Transport post MRF
- Indirect effect
- Induced effect
- Out-of-country
Quantifying Jobs Impact Data

► Estimate number of employees (FTEs) per 1000 ton throughput
  ► PET
  ► Aluminum
  ► Glass
  ► Each stage (collection, processing and secondary processing)

► Estimate FTEs for extraction and preparation of virgin material
Overview of Findings

Jobs Created (U.S.) from Beverage Container Recycling

<table>
<thead>
<tr>
<th>Deposit-return system (by refund amount)</th>
<th>Full-time-equivalent Jobs (Total U.S.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$.05</td>
<td>80,000</td>
</tr>
<tr>
<td>$.10</td>
<td>100,000</td>
</tr>
<tr>
<td>$.15</td>
<td>120,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Households eligible for curbside recycling</th>
<th>50%</th>
<th>75%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households eligible for curbside recycling plus other recycling</td>
<td>50%</td>
<td>75%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Ton for ton, deposit-refund materials require one and a half to four times more employees for collection and transport to the MRF than curbside systems.
Comparing the Jobs from Recovering Glass vs. Virgin Raw Material Extraction

<table>
<thead>
<tr>
<th>Material</th>
<th>FTEs per 1000 tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycled raw material - 1000 tons of glass</td>
<td>8.3</td>
</tr>
<tr>
<td>Virgin raw materials for 1000 tons of glass bottles</td>
<td>0.1</td>
</tr>
<tr>
<td>Virgin raw material for 1000 tons of fibreglass</td>
<td>0.6</td>
</tr>
<tr>
<td>Virgin raw materials for 1000 tons of aggregate</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Comparing the Jobs from Recovering PET vs. Virgin Raw Material Production

- Recycled raw material: 1000 tons of PET
- Virgin raw materials for 1000 tons of PET resin

- FTEs per 1000 tons:
  - Recycled PET: 9.9 FTEs
  - Virgin PET resin: 0.6 FTEs
of PET bales collected in the U.S. are exported
Current US PET Reclamation
(Based on 1.2 Billion Lbs/yr)

- Current US PET Reclamation: 72%
- Un-used PET Reclamation capacity: 28%
Conclusions

► As recovery tonnage increases, employment increases
  ► related to collection, processing and secondary processing
  ► excepting exports
  ► Losses that occur in primary resource-extraction activities are greatly outnumbered by the jobs created in material-recovery activities
Conclusions (cont.)

► A deposit refund collection system for beverage containers creates many more domestic jobs than curbside collection

► And these are LOCAL jobs

► Improved material quality directly impacts U.S. jobs; clean/separated recyclables more likely to stay in the U.S. for use by domestic manufacturers rather than be exported to foreign markets
Glass: Deposit vs. Single Stream
How can this research help me?

► Support waste recovery systems that ensure high rates of capture and keep material clean/separated. Ton for ton, this material will create more local and domestic jobs than would a dirtier mix of recyclables.

► http://www.container-recycling.org/

► http://www.container-recycling.org/issues/jobs.htm
Jobs Calculator

► Input two-letter code for State to automatically calculate the number of jobs that will be created

► User can customize and change certain inputs


► [http://www.container-recycling.org/issues/jobs.htm](http://www.container-recycling.org/issues/jobs.htm)

► Jobs page has CRI Study, “Returning to Work,” the jobs calculator, and links to several other studies on recycling jobs
To Get More Information

Just type in:
Container Recycling Institute!

Visit us at...

www.container-recycling.org

www.bottlebill.org

(310) 559-7451
Igloos for collection of color-sorted glass
European Glass Collection Methods

- Refillables
- Deposits on one-way containers
- Door-to-door (curbside)
- Bottle banks
- Civic Amenity Centers