Reduce/Reuse: A Climate Solution for Plastic Pollution

EESI Briefing
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We heart reuse.

We can’t create a good quality of life for 7.5B people and growing on a “one-way throw-away” model.
We Can’t Recycle and Compost Our Way Out

Recyclable- *myth*
- Most recovered materials down-cycled- doesn’t turn off the tap
- Foodware too dirty to recycle
- Recyclable better for the environment only 56% of the time

Compostable- *myth*
- Only 14 of 182 compost facilities in CA process compostable plastic- but it creates a contaminated product
- Food packaging lowers compost quality
- Compostables in landfill = 30X more GHG impact than when composted
Will Banning Plastic Solve the Problem?

150 MMT of plastic in our oceans...
and the problem is growing

Are single-use plastic bans the right solution?
The problem isn’t just plastic... it’s “single-use” itself

Bio-based plastic
- Corn, sugar, starch, or other crops
- Don’t degrade quickly enough; not all designed to biodegrade; contaminant in compost
- Fossil fuels used to grow and process - agriculture impacts (water pollution)

Aluminum
- Average recycled content 73%
- Virgin aluminum = 5 x more carbon than recycled
- Bauxite mining releases perfluorocarbons 9,200 times more harmful than CO2

Paper
- Over ½ of paper produced = packaging (3 billion trees per year)
- Toxic chemicals
- Greater GHG emissions compared to plastic

Wood / Bamboo
- Impacts from monoculture
- Biodiversity loss, heavy soil erosion, and sedimentation and eutrophication
Greenhouse gas emissions from products

- **Products & Packaging**
  - Provision of Goods & Use of Appliances and Devices: 37%
  - Heating & Lighting: 25%
  - Passenger Transport: 24%
  - Food Provision of Food: 13%
  - Infrastructure Road & Water Construction and Maintenance: 1%

- **Consumption-based: U.S. emissions from U.S. sources only**
  - Products & Packaging: 44%
  - Heating & Lighting: 21%
  - Passenger Transport: 22%
  - Food Provision of Food: 12%
  - Infrastructure Road & Water Construction and Maintenance: 1%
Upstream Report: Reuse Wins

Finding #1

Reuse Beats Single-Use by Every Environmental Measure
Better for Climate

Cups CO2 Impacts

Disposable paper, plastic, and bioplastic

3-10 x higher than

Reusable ceramic, stainless steel and glass
## CO₂ Impacts: Disposables vs. Reusables

<table>
<thead>
<tr>
<th>Product</th>
<th>DISPOSABLE Product Type</th>
<th>REUSABLE Product Type</th>
<th>kgCO₂e / per one product</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clamshells / Plates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bagasse Clamshell (Sugarcane)</td>
<td>PP Clamshell (Hard Plastic)</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>PS Plate (Rigid Plastic)</td>
<td>PP Plate (Hard Plastic)</td>
<td>0.07</td>
</tr>
<tr>
<td></td>
<td>PLA Plate (Fiber-based plastic)</td>
<td>Ceramic / Porcelain Plate</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>Cellulose Plate (Compostable)</td>
<td></td>
<td>0.12</td>
</tr>
<tr>
<td><strong>Cups</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paper Cup with PE Liner &amp; Paper Sleeve</td>
<td>Ceramic / Porcelain Cup</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>PET Cup (Lightweight Plastic)</td>
<td>Stainless Steel Cup with PP Lid</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>EPS Cup (Styrofoam)</td>
<td>Glass Cup</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>PS Cup (Solo Cup)</td>
<td></td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>PLA Cup (Fiber-based)</td>
<td></td>
<td>0.04</td>
</tr>
</tbody>
</table>
Finding #2 - Reuse Saves Businesses Money

Reuse saves businesses money for on-site dining 100% of the time.

Average savings for a small business:
- $3,000 - $22,000 cost savings
- 1,300-2,200 lbs. of waste eliminated
- 110,000 to 225,000 packaging items eliminated

Reusables Analysis: Universal Coffee Shop
The Starbucks Company|Alliance for Environmental Innovation Joint Task Force

Assumptions:
- $0.15 Cost of disposable packaging (cup, lid and insulating sleeve)
- $1.25 Cost of 16 oz. reusable ceramic cup (cup only)
- 1,000 uses: Lifetime of reusable ceramic cups
- 12 hours: Operation time of the coffee shop per day

Results

<table>
<thead>
<tr>
<th>No. of reusable cups used per hour</th>
<th>Daily cost savings*</th>
<th>Annual cost savings†</th>
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<tbody>
<tr>
<td>2</td>
<td>$3.15</td>
<td>$1,285</td>
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<tr>
<td>4</td>
<td>$7.14</td>
<td>$2,570</td>
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<tr>
<td>10</td>
<td>$17.85</td>
<td>$8,426</td>
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</table>

<table>
<thead>
<tr>
<th>No. of reusable cups used per hour</th>
<th>Annual water savings (gal.)‡</th>
<th>Annual GHG reduction (lbs.)‡</th>
<th>Annual solid waste reduction (lbs.)‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1,631</td>
<td>228</td>
<td>262</td>
</tr>
<tr>
<td>4</td>
<td>3,262</td>
<td>452</td>
<td>504</td>
</tr>
<tr>
<td>10</td>
<td>8,555</td>
<td>1,130</td>
<td>1,260</td>
</tr>
</tbody>
</table>

Critical success factors
- Excess Washing Capacity: The Starbucks-Alliance research indicated that the system had unused dishwashing capacity.
- Storage: The store needs to have storage space for a small supply of cups near the service area and additional storage for dirty dishes before they are washed.

* No. of reusable cups used per day (cost of disposable packaging) x cost of reusable services x 1,000
† Multiply by 360 days
‡ Based on the use of a 16 oz. cup with sleeve, by weight.
Imagine a city where...

- All restaurants serve on real plates, cutlery and cups.
- To-go coffee is provided in returnable reusable cups.
- Take-out and delivery is provided in reusable to-go containers that are easily returned.
- At public venues, water is provided in reusable bottles.
- At the ballpark, everyone is drinking beer and soda out of real cups.
- You can get groceries, cleaning, and personal care products delivered to your home in reusable containers- or in reusable containers at the store.
And in this city...

- Tens of thousands of people are employed in delivery, pick-up, cleaning, stocking and logistics.
- Litter and solid waste costs are down and community pride is up.
- None of these innovations required you to bring your own anything.
- Community leaders and policymakers worked to create the conditions for this thriving reuse economy.
- Then the big companies saw this was the future, and everyone started doing it.
Waste Management vs. Waste Prevention

- Decades of focus on diversion from landfill
- Reduce and reuse must be stand-alone policy goals
- To be effective, they need specific enforceable metrics
Two Policy Approaches to Shift the Paradigm

1. **REDUCE**—eliminate the unnecessary stuff

2. **REUSE**—make reuse and refill the norm
Overview of Strategies and Policies

Strategy #1- Reduce as Much as Possible
- Sector-wide targets for reduction- (build into EPR and bottle bills)
- Bans on throw-away packaging products (bags, toiletries, foodware, cups, bottles)
- Accessories on request- (CA and WA; 30+ local policies)

Strategy #2: Transition the Rest to Reusable/Refillable
- Refillables infrastructure and targets in Bottle Bill (BFFPPAct)
- Reusable bags (State and local laws enacted, BFFPPAct)
- Sector-wide targets for reusable packaging
- Only reusable foodware for on-site dining (local ordinances)
- Consumer charges for throw-away cups and containers, plus mandatory reuse
- Reuse at government events and workplaces, in gov’t purchasing
Reuse policies are being passed around the world.

Follow the progress of the reuse movement via Upstream’s policy tracker below – and get a global view as reuse policies make waves around the world on our Reuse Policy Map.
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