Using the Visualization Software Qlik for TRI Data Presentation and P2 Outreach

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Data Visualization for Improved Value
Why Visualization?

• Study underlying patterns,
• Find relationships,
• Understand data,
• Expand use of underutilized TRI data,
• Integrate more data variables,
• Supplement traditional reports, and
• Promote greater data consumption.
Types of Visualization

- **Conventional**
  - Time Series/Bar Chart
  - Choropleth Map

- **More Elaborate**
  - Tree Map
  - Proportional Symbol Map
  - Gauge
Why Create a Food Sector P2 Viz Tool?

- Challenge: Uncoordinated P2 Outreach
- Need
  - Maximize our pollution prevention efforts
  - Focus resources to meet National Emphasis Area (NEA) goals
  - Increase coordination
  - Drive greater innovation
Food Sector P2 Data Visualization

Objectives

Integrate Toxics Release Inventory (TRI), Greenhouse Gas (GHG), and demographic data to help with:

- Targeting
- Amplification
- Barrier Identification
Demo of Data Visualization using Qlik Sense

https://qlikviz.epa.gov/extensions/TRI_P2_Food_Manufacturing/TRI_P2_Food_Manufacturing.html

TRI Pollution Prevention Profile: Food Manufacturing

Use the app to:
learn about the sector specific data you see
interact with the visuals to dig deeper by subsector, chemical and geography
navigate through all your information like never before
draw insight into pollution prevention approaches
Quick Stats
Filter options
Tabs
Proportional map of all food sector facilities reporting from 2005-2014 based on total releases
Source Reduction (SR) Activities

Top chemicals by SR

SR by chemical and subsector

Counts

Link to P2 report
Waste Managed

- Managed by location
- by subsector
- by method
Releases

Releases by State

Releases by Location

Releases by Subsector and Year

Releases by NAICS Code

Releases by Media and Year

Releases by Media and Subsector

Releases by location

by subsector

by method
Chemicals

Tree maps of top 5 chemicals by waste managed, releases, forms, and subsector
### Breakdown of Waste Data

#### Data table

<table>
<thead>
<tr>
<th>Subsector</th>
<th>3111 - Animal Feed</th>
<th>3112 - Grain/Oils/seed Milling</th>
<th>3113 - Sugar and Confectionery</th>
<th>3114 - Fruit and Vegetable</th>
<th>3115 - Dairy</th>
<th>3116 - Meats</th>
<th>3117 - Seafood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities</td>
<td>2,730</td>
<td>541</td>
<td>754</td>
<td>40</td>
<td>200</td>
<td>539</td>
<td>445</td>
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<tr>
<td>Facilities with Source Reduction</td>
<td>480</td>
<td>22</td>
<td>69</td>
<td>17</td>
<td>48</td>
<td>103</td>
<td>99</td>
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<tr>
<td>Waste Managed</td>
<td>11,109,011,868</td>
<td>137,891,484</td>
<td>7,399,622,284</td>
<td>185,487,682</td>
<td>1,106,315,027</td>
<td>2,118,515,632</td>
<td>8,777,595</td>
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<tr>
<td>Recycled</td>
<td>6,079,385,332</td>
<td>92,979,093</td>
<td>6,407,875,046</td>
<td>19,152</td>
<td>4,473,887</td>
<td>11,996,656</td>
<td>7,088,114</td>
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<tr>
<td>Energy Recovery</td>
<td>6,985,778</td>
<td>57,612</td>
<td>3,761,963</td>
<td>210,188</td>
<td>29,921</td>
<td>1,373,233</td>
<td>792,387</td>
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<tr>
<td>Treated</td>
<td>3,158,398,780</td>
<td>27,846,650</td>
<td>5,701,160,050</td>
<td>42,088,715</td>
<td>77,842,152</td>
<td>969,799,433</td>
<td>1,414,397,585</td>
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<tr>
<td>Disposed of or Otherwise Released</td>
<td>1,573,247,358</td>
<td>17,724,042</td>
<td>501,165,705</td>
<td>61,811,851</td>
<td>79,865,149</td>
<td>123,881,716</td>
<td>695,037,717</td>
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<tr>
<td>Total Disposal or Other Releases</td>
<td>1,338,068,088</td>
<td>17,802,996</td>
<td>358,867,477</td>
<td>61,405,409</td>
<td>78,955,527</td>
<td>182,386,893</td>
<td>685,842,881</td>
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<tr>
<td>On-site Air</td>
<td>1,201,398,491</td>
<td>10,588,376</td>
<td>315,591,041</td>
<td>68,955,132</td>
<td>78,206,868</td>
<td>80,991,383</td>
<td>678,326,761</td>
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<tr>
<td>Water</td>
<td>426,969,484</td>
<td>4,886,824</td>
<td>281,811,868</td>
<td>58,603,795</td>
<td>18,320,165</td>
<td>5,058,207</td>
<td>51,302,177</td>
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<tr>
<td>Land</td>
<td>718,265,797</td>
<td>12,425,577</td>
<td>29,856,785</td>
<td>3,249,859</td>
<td>50,151,529</td>
<td>20,778,215</td>
<td>588,253,747</td>
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<tr>
<td>Off-site</td>
<td>114,015,558</td>
<td>81,909</td>
<td>5,523,240</td>
<td>7,841,477</td>
<td>11,733,173</td>
<td>49,102,990</td>
<td>39,814,638</td>
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<tr>
<td>GHG Emissions</td>
<td>36,766,469</td>
<td>232,474</td>
<td>21,218,453</td>
<td>5,794,931</td>
<td>2,465,272</td>
<td>1,667,757</td>
<td>4,463,249</td>
</tr>
</tbody>
</table>
GHGRP and TRI Comparison

GHGRP data in this visualization is only linked to TRI data by subsector and location.

**GHGRP Facilities in 2014**

- **324** GHGRP Emissions (mtCO₂e)
- **36.71 million**

**Percent of TRI Facilities in 2014**

- **292** GHGRP/TRI Facility Overlap
- **35.29 million**

**GHGRP Emissions and TRI Air Releases from TRI Facilities by Subsector in 2014**

**GHGRP Emissions and TRI Air Releases from TRI Facilities by Region in 2014**

Choropleth state map of GHG emissions

Double axis bar charts - GHG and TRI Air emissions
List of Facilities

Magnifying glass for filtering

<table>
<thead>
<tr>
<th>TRID</th>
<th>Facility Name</th>
<th>Subsector</th>
<th>State Postal Code</th>
<th>Included in GHGRP</th>
<th>Facility P2 Report</th>
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<tbody>
<tr>
<td>09817PRCO1NA09DI</td>
<td>ADM ALLIANCE NUTRITION OF PUERTO RICO LLC</td>
<td>3111 - Animal Food</td>
<td>PR</td>
<td>No</td>
<td>P2 Report</td>
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<tr>
<td>0985909RNLL0210NM</td>
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<td>No</td>
<td>P2 Report</td>
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<td>09771TOSSTL0106E</td>
<td>TO-RICOS LTD LAS PIEDRAS FEED MILL</td>
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<td>PR</td>
<td>No</td>
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<tr>
<td>13455KINTT7593R</td>
<td>GOLDSTAR FEED &amp; GRAIN</td>
<td>3111 - Animal Food</td>
<td>NY</td>
<td>No</td>
<td>P2 Report</td>
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<tr>
<td>13680WINTM11010C</td>
<td>GOLDSTAR FEED &amp; GRAIN</td>
<td>3111 - Animal Food</td>
<td>NY</td>
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<td>P2 Report</td>
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<td>13961WINGHLM44MNT</td>
<td>EINHAMONT - VENTURE MILLING</td>
<td>3111 - Animal Food</td>
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<td>14475WLNDSL977SC</td>
<td>LAND O LAKES PURINA FEED LLC - CALEDONIA (CIC)</td>
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<td>1790WOCR410102V</td>
<td>CARGILL INC</td>
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<td>PA</td>
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<td>19745WLSN3798B</td>
<td>ALLEN HARIM FARMS LLC - SEAFORD MILL</td>
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<td>DE</td>
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<td>P2 Report</td>
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<tr>
<td>2174KINTNT11431</td>
<td>KENT NUTRITION GROUP INC</td>
<td>3111 - Animal Food</td>
<td>MD</td>
<td>No</td>
<td>P2 Report</td>
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<tr>
<td>2763WTHMC2010CM</td>
<td>THE JAMS CO</td>
<td>3111 - Animal Food</td>
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<td>2832WTRKNM364TU</td>
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<td>2845WNHSJH32EM</td>
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<td>2868WSDR168PA</td>
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<tr>
<td>3855WHSFRF118UR</td>
<td>HOUSE OF RAFOE COLUMBUS FARMS OF</td>
<td>3111 - Animal Food</td>
<td>CA</td>
<td>No</td>
<td>P2 Report</td>
</tr>
</tbody>
</table>
Highlight of Select Features in Qlik

Navigate to a previous selection

Black bar tracks selections. Selections apply to all tabs. Click x to deselect.

Query data using any terms

Interact with the visuals – mouse over to see details or click to filter

Lasso for multiple selections.
Thank You!

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Pollution Prevention (P2) Program: www.epa.gov/tri/p2
TRI P2 webpage: www.epa.gov/tri/p2

For EPA and Regions, Qlik Access: https://qlikviz.epa.gov