

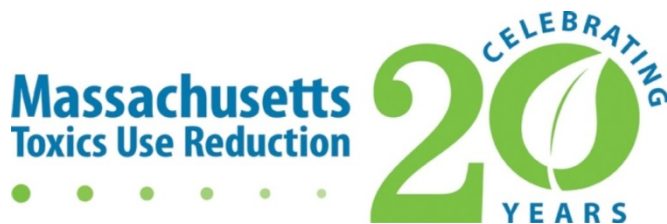


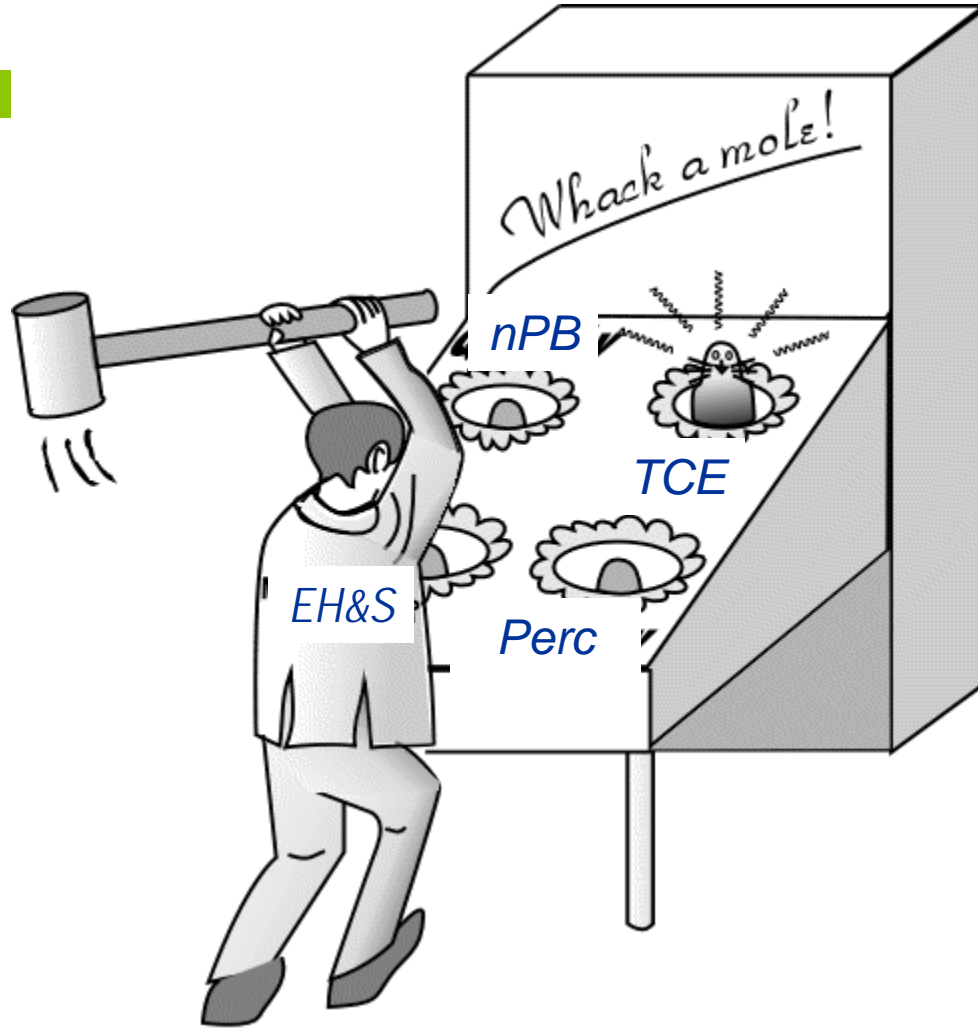
Toxics Use Reduction Institute

Transition to Safer Substitutes in Propyl Bromide Case Study

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Learning Objectives

Explore:

- Traditional transition from problematic chemicals to new, also problematic chemicals

Using n propyl bromide as a case study

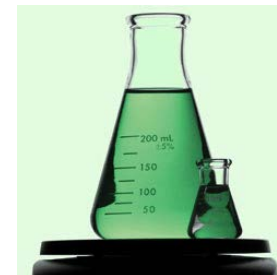
Understand:

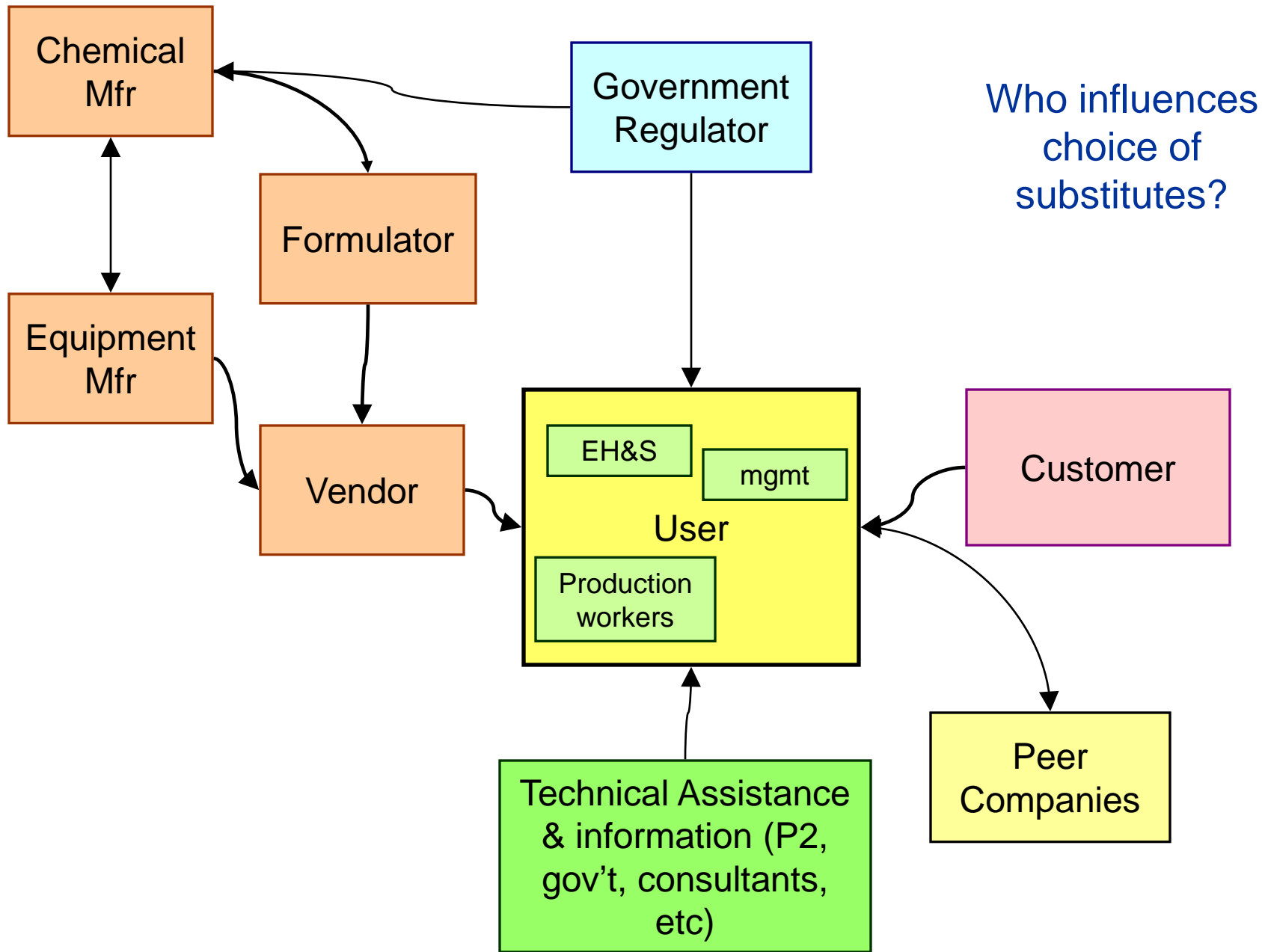
- n Propyl Bromide, its hazards, its alternatives
- Massachusetts TURA approach to getting companies to transition to safer substances

and learn from each other, more ways to improve the transition

Long-term Objective

- *What Lizzie Grossman said!*
 - Green Chemistry
 - Biocompatible substances
 - Less resource intensive
 - Inherently safer processes





Massachusetts Toxics Use Reduction Act

**Massachusetts
Toxics Use Reduction**



- Works with businesses and communities to reduce their use of toxic substances
- Right to Know Reporting, Facility Planning, and Assistance

“In a world without Perc, what alternative will you chose?”

“Being “Green” has never been easier with DrySolv. The first environmentally responsible replacement solvent for your dry cleaning machine!”¹

“In January of 2007, I started using DrySolv in my dry cleaning machine due to my total frustration with all the environmental issues with perc. WOW! What a smart move that was! EPA and KDHE have no regulations on DrySolv. Environmentally, it is perfectly okay and not considered hazardous...” Leroy Riedel, Master Cleaners Inc., Hays, KS

1. Enviro Tech International’s DrySolv web site materials, accessed at: <http://www.envirotechint.com/products/dry-cleaning/>

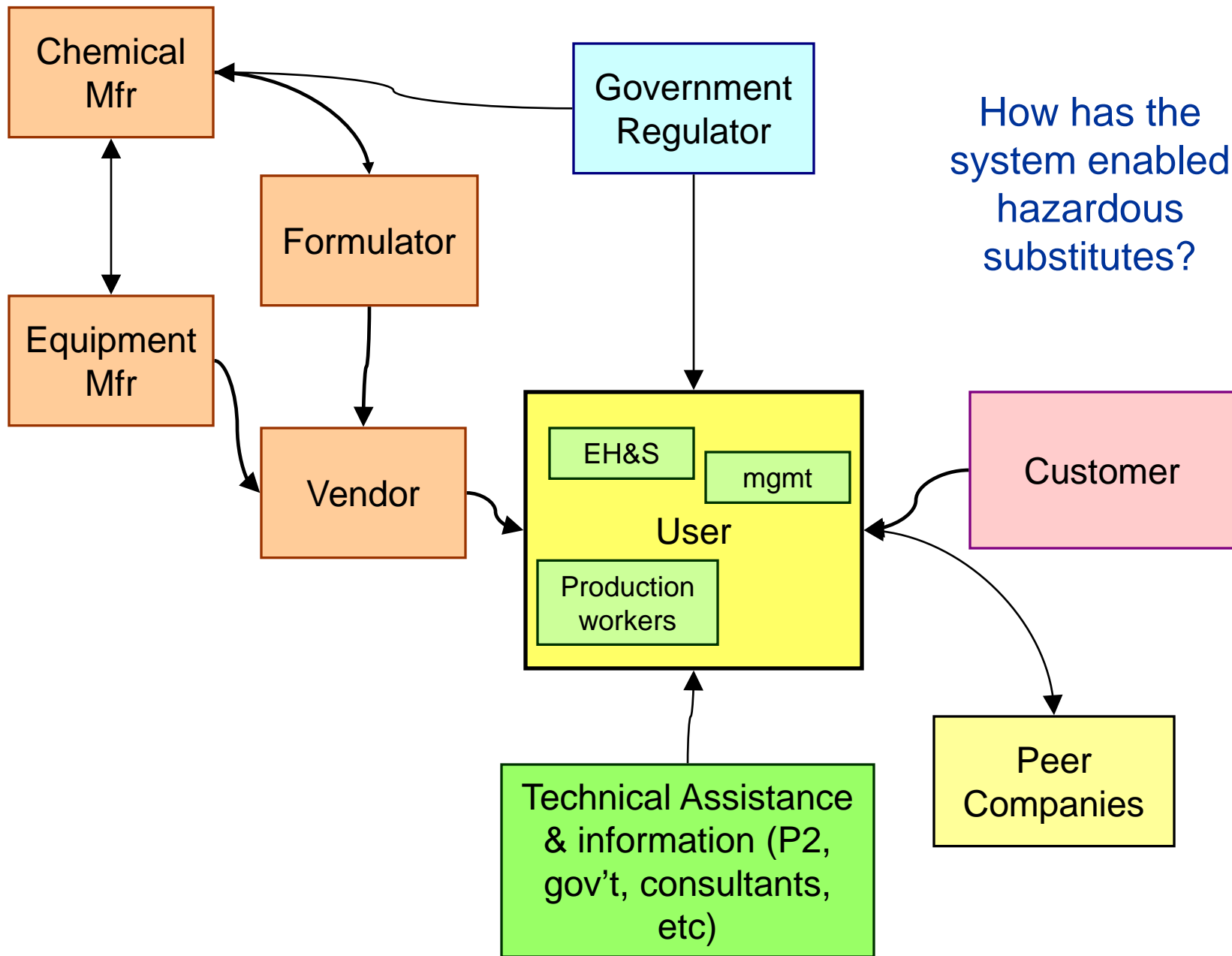
DrySolv Dry Cleaning Solution¹

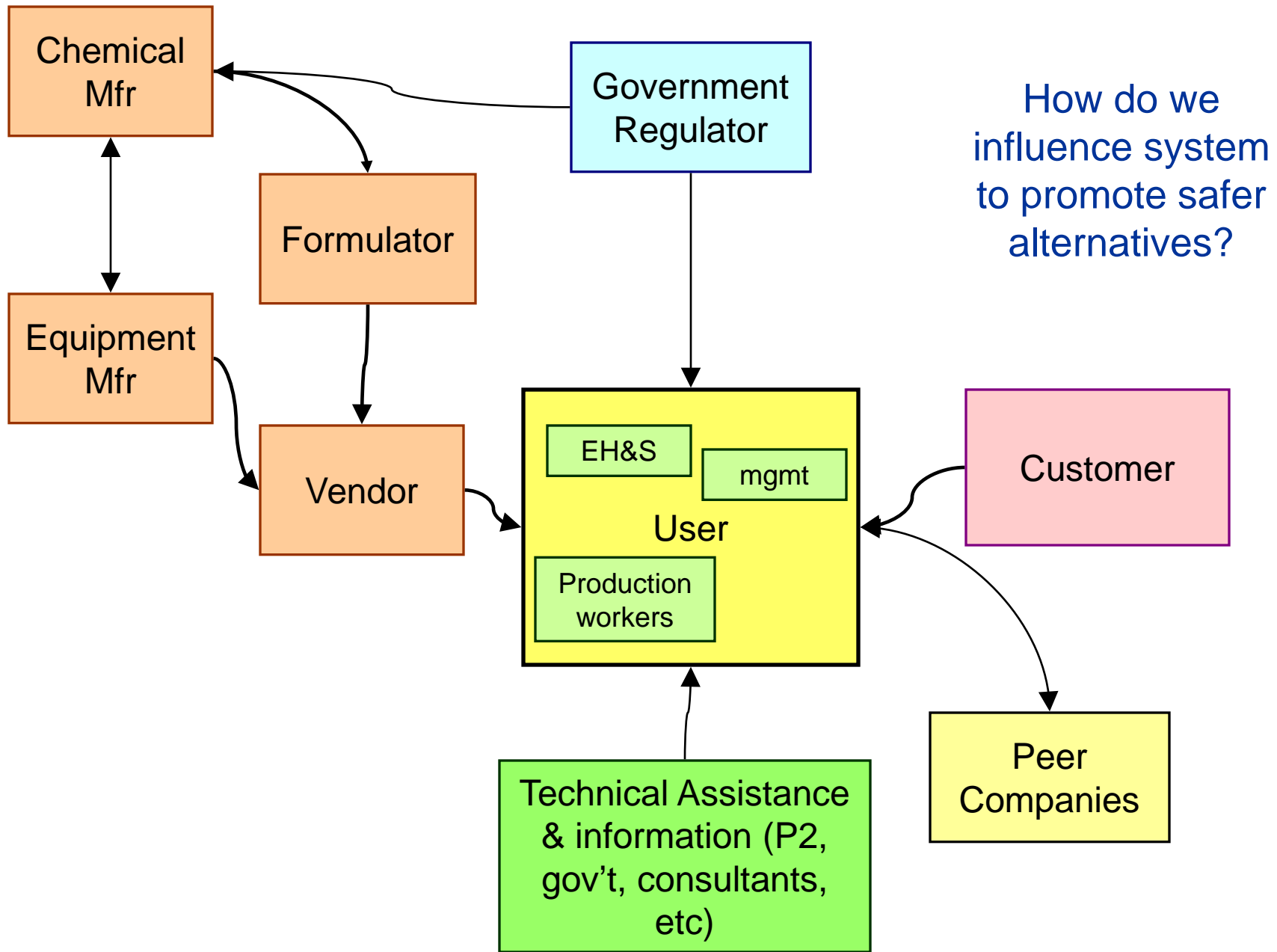
- DrySolv is **non-flammable**, showing no flashpoint in multiple tests and test methods. (ASTM D-56 TCC, ASTM D-92 COC, ASTM D-93 TCC).
- DrySolv is **non-chlorinated**.
- DrySolv is **non-hazardous**. (DOT, OSHA, NESHAP, RCRA, Clean Water Act)
- DrySolv is **not a hazardous air pollutant**, is **SNAP approved**, and does not contribute to global warming. (NESHAP, Significant New Alternative Program-SNAP approved (Federal EPA)).
- The USEPA states that DrySolv's main ingredient is less persistent in the environment than many other solvents, is of low to moderate concern for movement in soil, **does not warrant listing under the Toxics Release Inventory** and is not prone to bioaccumulation. (USEPA - Federal Register May 30, 2007)
- DrySolv does not have a hazardous decomposition or hazardous polymerization.

1. Enviro Tech International's DrySolv web site materials, accessed at:
<http://www.envirotechint.com/products/dry-cleaning/>

How did we get here?

- Flammable petroleum solvents
 - Chlorinated Solvents
 - Carbon tetrachloride
 - CFCs, TCA
 - TCE
 - nPB, siloxanes, HFCs, aqueous
-





Massachusetts TURA

- 2006 Amendments
 - Focus on reducing use of Higher Hazard Substances
- New addition to process:
 - Evaluate alternatives to HHS for listing and/or HHS designation

N Propyl Bromide and TURA

- TCE and Perc designated as HHS
 - Identify Alternatives for primary uses
 - Dry cleaning, solvent parts degreasing
 - *Challenge with number of distinct chemical alternatives – choose representative chemical for each category*
 - Science Advisory Board listing review, categorization review
 - TURI policy analysis
 - Listing recommendations, categorization
-

TURA nPB Action

- TURA Administrative Council voted to list nPB (1 bromopropane), reporting year 2010
- SAB did not categorize nPB as either more or less hazardous
- Also considering more toxic 2-bromopropane, contaminant in 1-bromopropane

TURA Chemical Prioritization

TURA List of Toxic and Hazardous Substances

SAB More
Hazardous
Substances

TURA
HHS*

TCE, perc

N propyl bromide

SAB Less
Hazardous
Substances

TURA
LHS**

*TURA Higher Hazard Substances have 1000 lb reporting threshold and

**Lower Hazard Substances have no per chemical fee

Questions?

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