NATIONAL POLLUTION PREVENTION ROUNDTABLE

WASHINGTON STATE Department of Ecology

Prevention at the Source

The story of Pollution Prevention in the United States & New Opportunities for Chemicals Policy Reform

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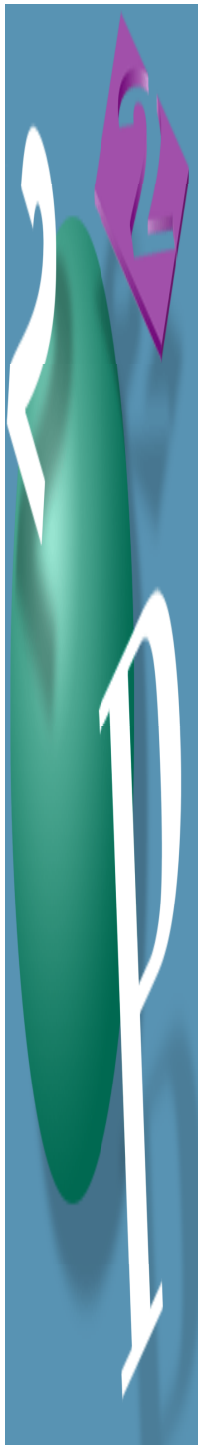
3rd International Workshop Advances in Cleaner Production

Cleaner Production Initiatives & Challenges for a Sustainable World

Brazil – Sao Paulo – SP

2011 May 18-20



Why is prevention the smartest, cheapest and healthiest approach?

Love Canal - 1978

Source: Toxipedia.org

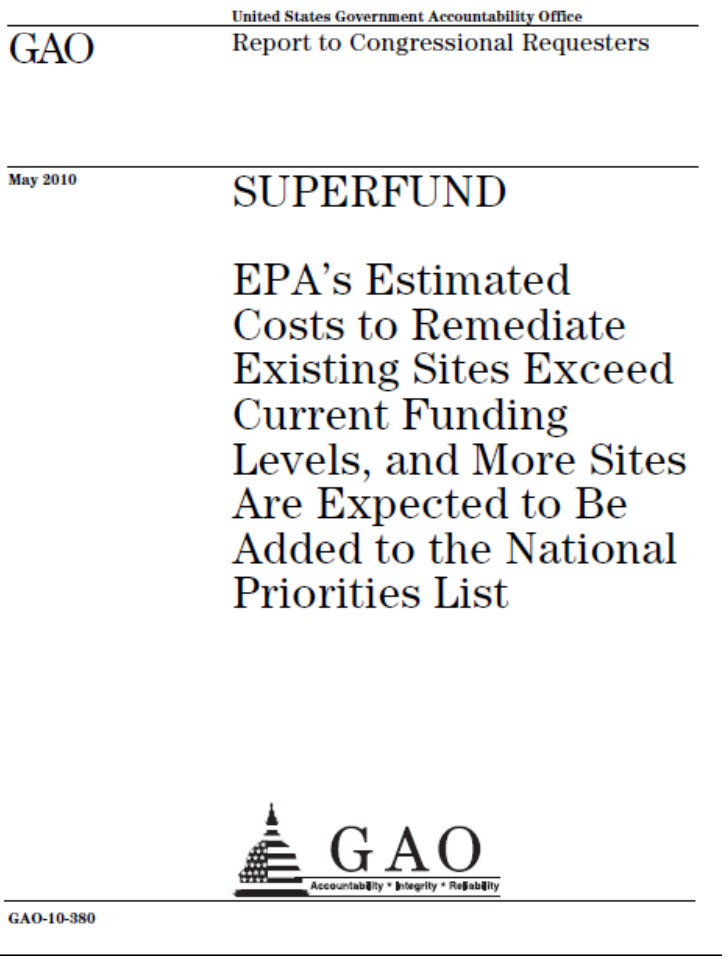
Valley of the Drums - 1980

Source: U.S. EPA Photo

Seattle, Washington
Lower Duwamish Superfund Site

DUWAMISH RIVER CLEANUP COALITION

Costs of U.S. Superfund Cleanup



United States Government Accountability Office

GAO

Report to Congressional Requesters

May 2010

SUPERFUND

EPA's Estimated Costs to Remediate Existing Sites Exceed Current Funding Levels, and More Sites Are Expected to Be Added to the National Priorities List

GAO

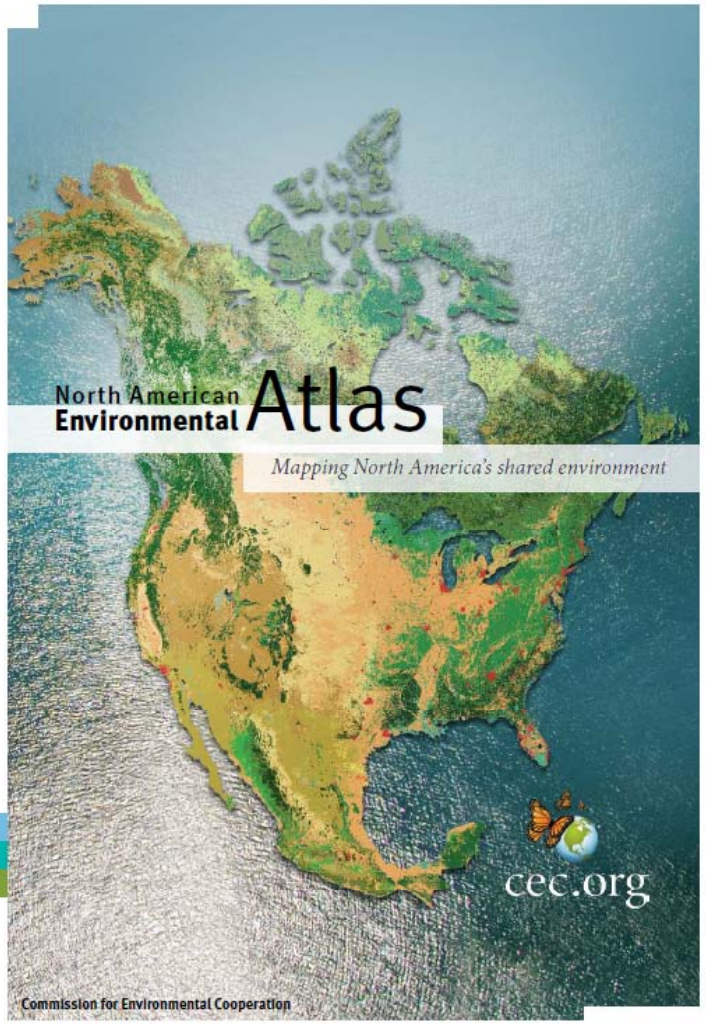
Accountability * Integrity * Reliability

GAO-10-380

- 1,200 sites listed
- 20 – 25 new sites expected per year.
- Average cost is $16.0 million U.S. dollars per site.
- Needs exceed resources; at least $75 billion total cleanup costs (1994 estimate)

The Power of Disclosure

Pollutant Release & Transfer Register (PRTR)



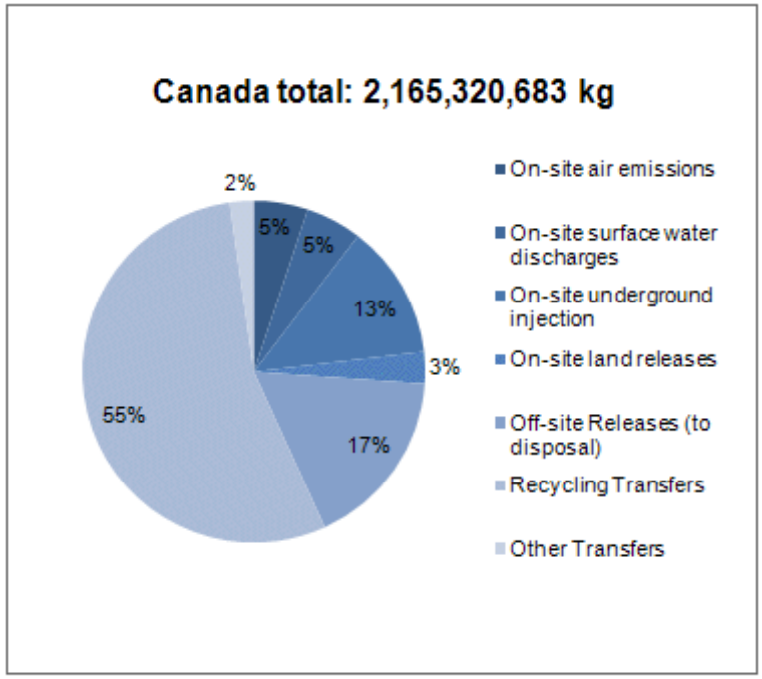
Case Study:

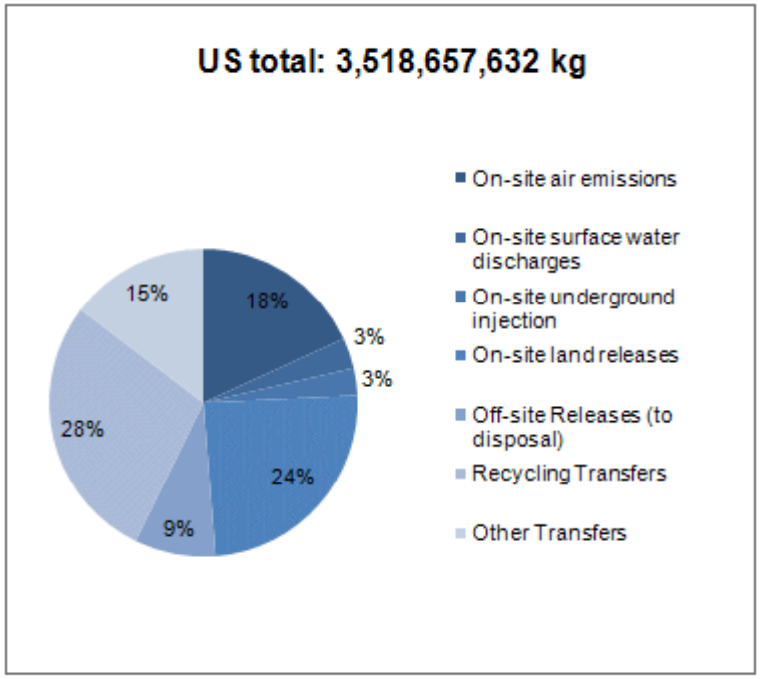
North American Pollutant Release and Transfer Register

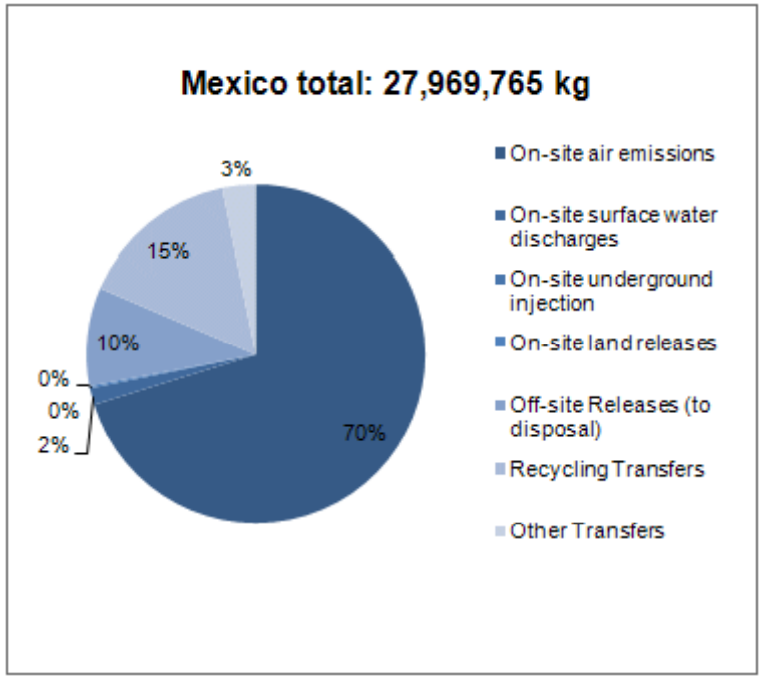
A PRTR model to help pilot a TRI project.

35,000 facilities reporting in North America

Source: Commission on Environmental Cooperation







Canada, U.S. & Mexico Profiles

In 2006, North American facilities reported more than 5.7 billion kg in releases and transfers of toxic pollutants.

Toxic Release Inventory

- U.S. Toxic Release Inventory (TRI)
- Washington State Chemicals Trends
- Washington State Toxic Metals Prevention Case Study

U.S. Toxics Release Inventory

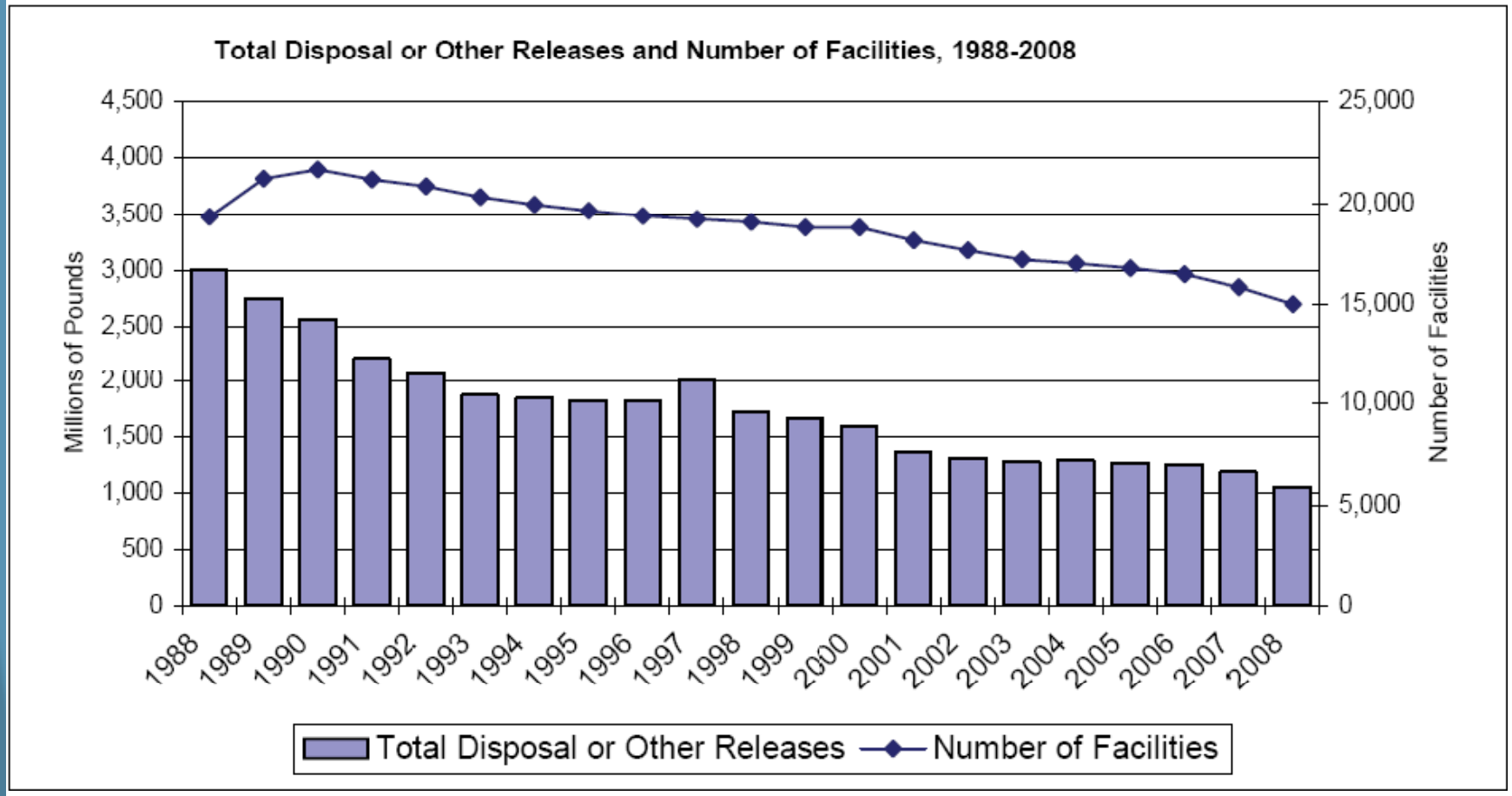
TRI requires certain facilities in the manufacturing, mining, electricity generation, and other sectors to report annually their release and other waste management (*e.g., recycling) quantities for the 650+ TRI-listed chemicals*

Source: EPA | OFFICE OF ENVIRONMENTAL INFORMATION

TRI Benefits

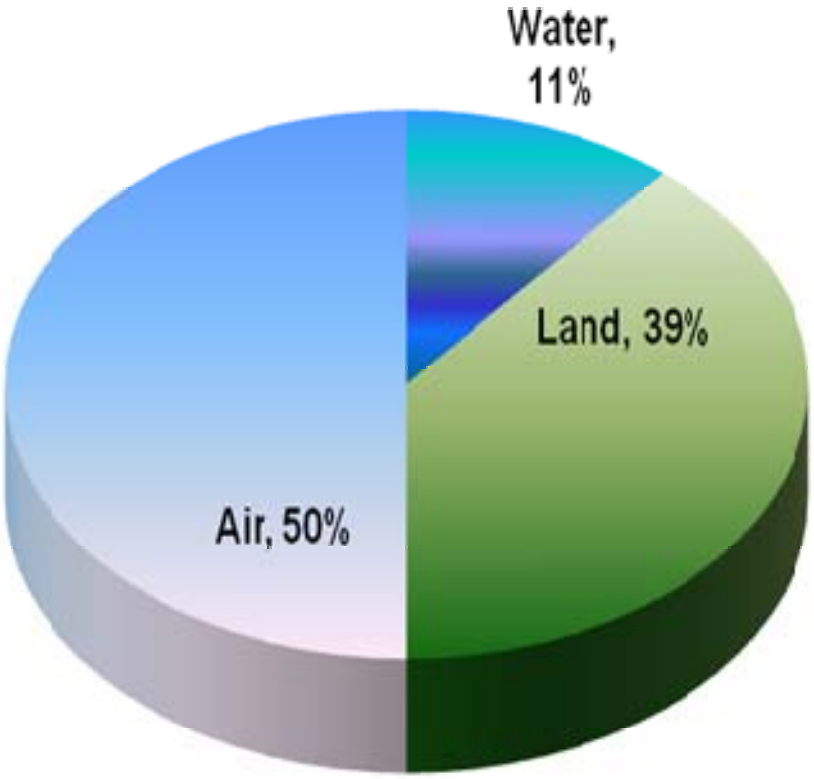
- Reductions over time.
- Cost-effective PTRT model.
- Multiple-benefits to industry, government and communities.
- Helps prioritize chemical reductions.
- Fee revenue for pollution prevention programs.

U.S. Continuous Reductions



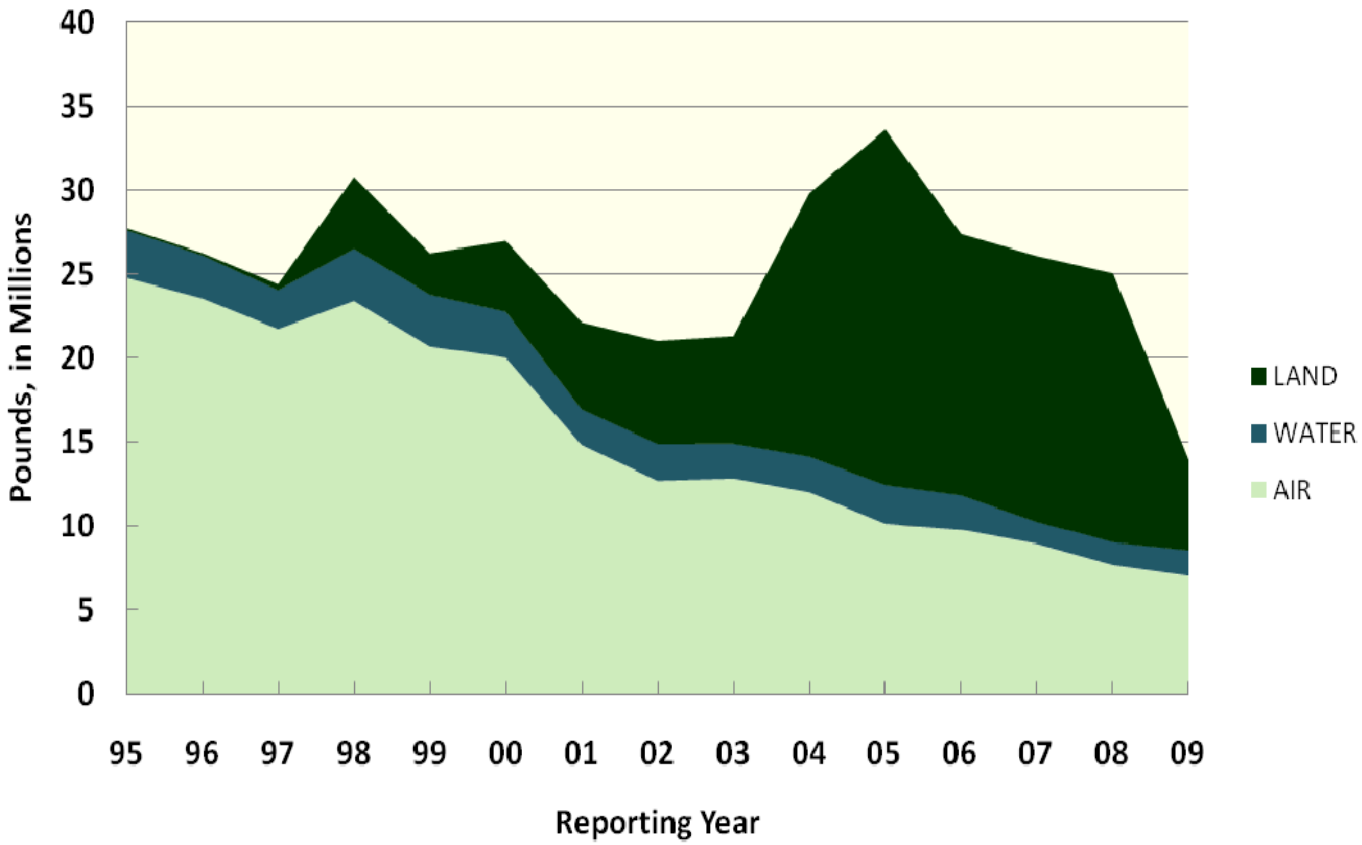
Source: Page 37 of the 2008 TRI National Analysis Key Findings document, accessible from the TRI website at:
http://www.epa.gov/tri/tridata/tri08/national_analysis/pdr/TRI_key_findings_2008.pdf

2009 Washington State Toxic Release Inventory



Washington State TRI on-site releases by media, 2009 (in pounds).

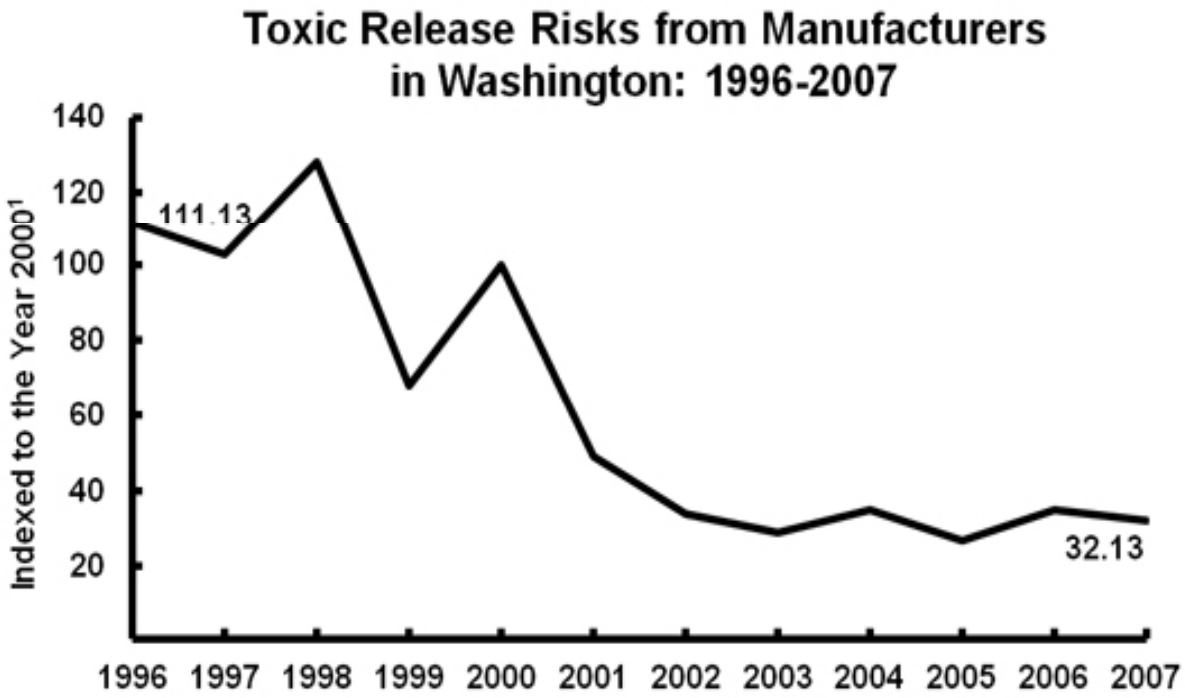
Washington State TRI On-site Releases to Air, Water & Land 1995-2009



In 2009, 312 Washington facilities submitted 1,040 TRI reports representing the use of 107 different chemicals or chemical groups.

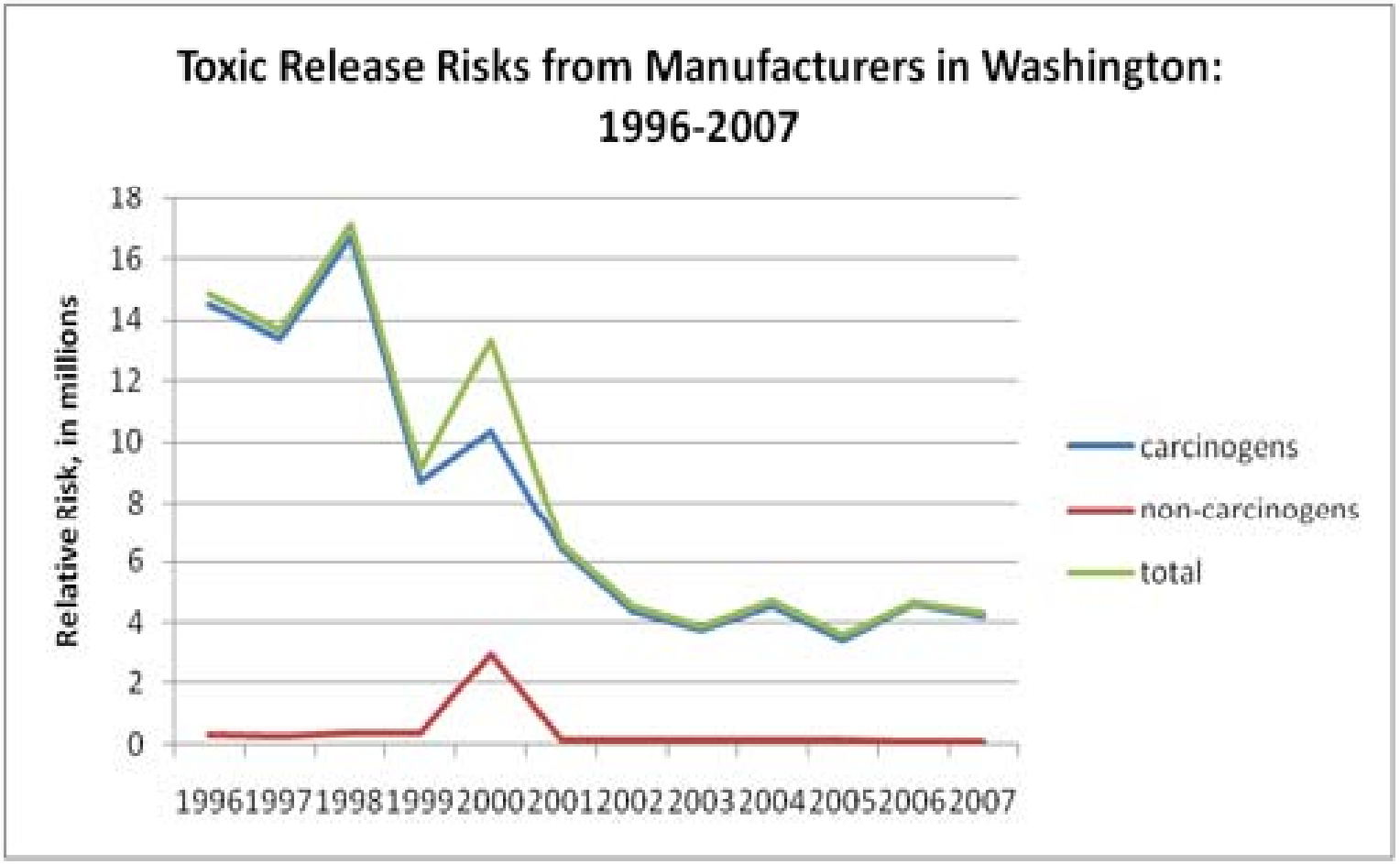
A total of 13,945,013 pounds of toxic chemicals were released to air, land, and water in 2009 in Washington State.

Washington State Toxic Release Inventory
Risk Screening Environmental Indicator (RESI)



RSEI takes the pounds of toxics emitted to the environment, analyzes their toxicity and risk to humans, and ranks their potential risk relative to other Toxic Release Inventory (TRI) releases.

Washington State Toxic Release Inventory
Risk Screening Environmental Indicator (RESI)



U.S. EPA Risk-Screening Environmental Indicators (RSEI) model

- Examine trends.
- Rank and prioritize chemicals and industry sectors for strategic planning.
- Support community-based projects.

http://www.epa.gov/oppt/rsei/index.html

Persistent, Bioaccumulative and Toxic (PBT) Releases in Washington State (2009)

Chemical	No. of Reports	Pounds Released to Air	Pounds Released to Water	Pounds Released to Land	Total Pounds Released On Site
Lead	66	1,631	681	1,148,937	1,151,249
Lead compounds	74	2,964	4,005	530,894	537,864
PAC chemical category	31	3,476	37	229	3,742
Mercury compounds	19	627	17	103	747
Benzo(g,h,i)perylene (a PAC)	23	452	3	10	464
Mercury	6	3	0	9	12
Polychlorinated Biphenyls	4	0	0	0	0
Tetrabromobisphenol A	3	0	0	0	0
Hexachlorobenzene	1	0	0	0	0

In 2009, the top three persistent, bioaccumulative, and toxic (PBT) chemicals by weight of on-site releases were lead, lead compounds, and polycyclic aromatic compounds.

TRI Data Uses

- Data source for pollution prevention (P2) planning regulations.
- Measure environmental performance
- Inform decision-making and set priorities – toxic metals
- Evaluate environmental justice (EJ) concerns
- Determine priorities for environmental compliance and enforcement efforts

Washington State
Toxic Metals Prevention Project

- Utilizes TRI data.
- Metals of Concern: Mercury, Lead & Cadmium.
- 44 Million pounds of metals waste reported in 2009.
- Planning requirements.
- Technical assistance.

Success Stories

- Business moving to lead-free solder will eliminate lead use by 105 pounds per year.
- Hospital eliminated mercury and lead sources by switching to digital radiography.
- Manufacturer switched to a non-chromium method for aluminum products in 2007 that eliminated a toxic metal, saved 36,000 gallons less water and 2,000 pounds of hazardous waste.

TRI Limitations

- Limited number of chemicals. (650)
- Limited number of reporters.
- Reduction trends are leveling off.
- Challenges to add new chemicals.

The Father of Pollution Prevention

"Pollution is waste, and waste leads to shortages tomorrow"

In 1975, Dr. Joseph Ling launched a revolutionary Pollution Prevention Pays program (3P).

United States Pollution Prevention Laws

1986 **Toxics Release Inventory** (TRI) requires annual pollutant and waste release reporting on 600 chemicals by 60,000 firms

1990 **National Pollution Prevention Act**
--defined pollution prevention as Source Reduction, “at the source”

1989-1994 **Waste Reduction and Pollution Prevention laws**
(24 state laws)
Most state laws established facility technical assistance programs, 16 laws required pollution prevention planning

U.S. Pollution Prevention Act of 1990

Under Section 6602(b) of the Pollution Prevention Act of 1990, Congress established a national policy that:

Pollution should be **prevented or reduced at the source** whenever feasible;

Pollution that cannot be prevented should be recycled in an environmentally safe manner whenever feasible;

Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and

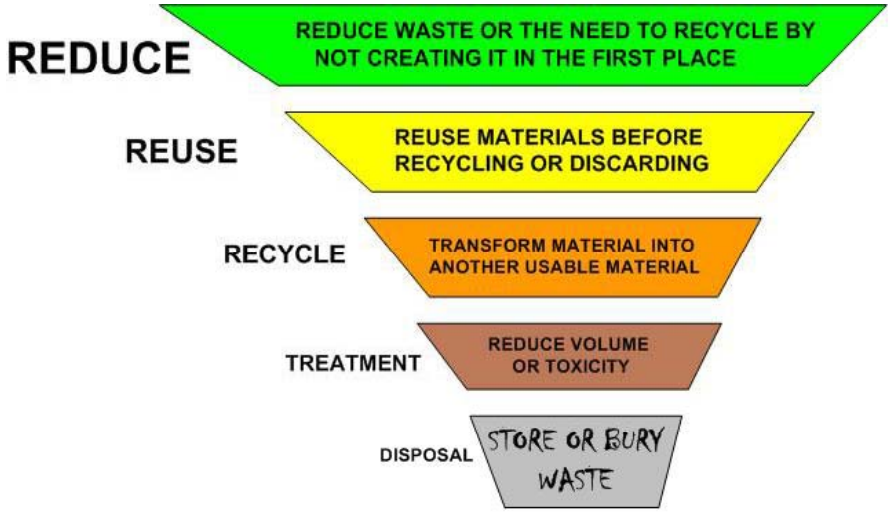
Disposal or other releases into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

Cleaner Production & Pollution Prevention

Focuses on changing production inputs and processes so as to reduce the generation of wastes and emissions at the source and prior to recycling or treatment.

Holistic and multi-media in focus avoiding risk shifting among air, water, soil and workplaces.

Top of the Waste Management Hierarchy



U.S. EPA Definition of Pollution Prevention

“Source Reduction" to mean any practice which:

Reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and--reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

The term includes: equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

Under the Pollution Prevention Act, **recycling, energy recovery, treatment, and disposal are not included** within the definition of pollution prevention. Some practices commonly described as "in-process recycling" may qualify as pollution prevention.

Our Story: Washington State History

1984: State hazardous waste minimization programs established

1988: EPA Toxic Release Inventory

1990: Washington Hazardous Waste Reduction Act

1990: Federal Pollution Prevention Act

1993: Washington Toxics in Packaging Act

2000: Washington State Strategy to Reduce Persistent, Bioaccumulative and Toxic (PBTs) Chemicals

2003: Washington State Mercury Chemical Action Plan

2007: Washington State Toxic Flame Retardants Legislation (PBDEs)

2008: Washington State Children's Safe Products Act (CSPA)

2010: Washington State Bisphenol A (BPA) Legislation

2011 Puget Sound Legislation: 1st State to ban toxic street pavement sealing materials; Bans Copper in recreational boat paint; Starting new rule to eliminate copper in automotive brake pads;

Toxics Use Reduction In Massachusetts (TURA)

- 1989—Massachusetts was the first U.S. state to enact a Toxics Use Reduction Law

- Goals of the Massachusetts Law
  - Achieve 50% reduction in byproduct (waste) by 1998
  - Establish toxics use reduction as the preferred means of compliance
  - Promote the competitive advantage of Massachusetts Industry
  - Reduce the production and use of toxic chemicals

- The program has focused on some 190 chemicals and involved over 1000 firms

Source: Dr. Ken Geiser, UMASS Lowell

Industry Responsibilities under State TURA

- Any firm manufacturing, processing or using any of 1,200 toxic chemicals over a given threshold must:
  - **Information**--report annually to the State on the amount of use and waste generated
    - Reports on chemical use, by-product generation and chemicals in products
  - **Planning**--prepare and biannually update a plan to reduce or eliminate the chemicals
    - Plans are kept confidential and on site with public summaries
  - **Fees**--pay an annual fee
    - Fees generate some $3.8 million per year

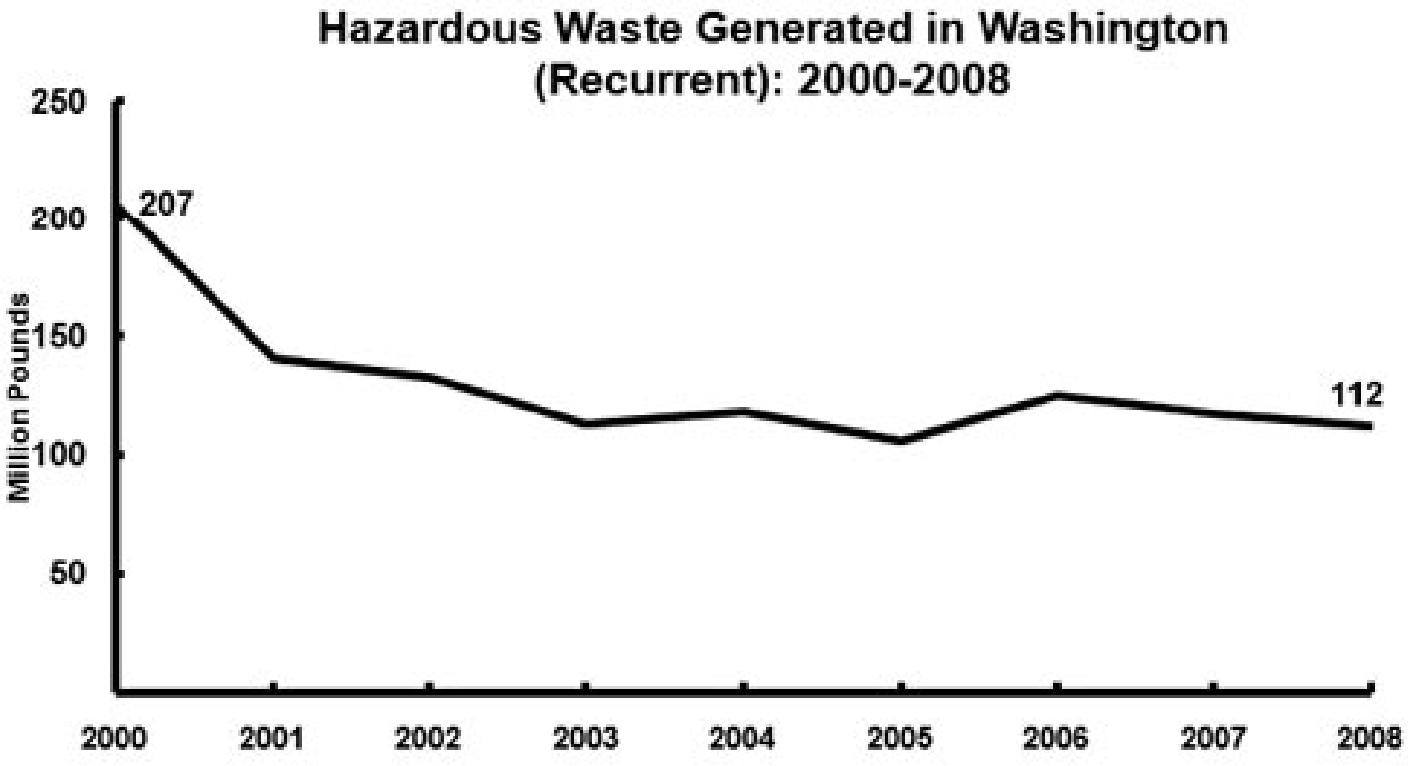
Source: Dr. Ken Geiser, UMASS Lowell

Government Responsibilities under TURA

- **Department of Environmental Protection (DEP)**
  - Assures corporate compliance
  - Collects fees
- **Office of Technical Assistance (OTA)**
  - Provides workshops and trainings
  - Provides confidential, on-site technical services
- **Toxics Use Reduction Institute (TURI)**
  - Trains TUR planners
  - Conducts research and lab testing
  - Provides library and information services
  - Provides community programs

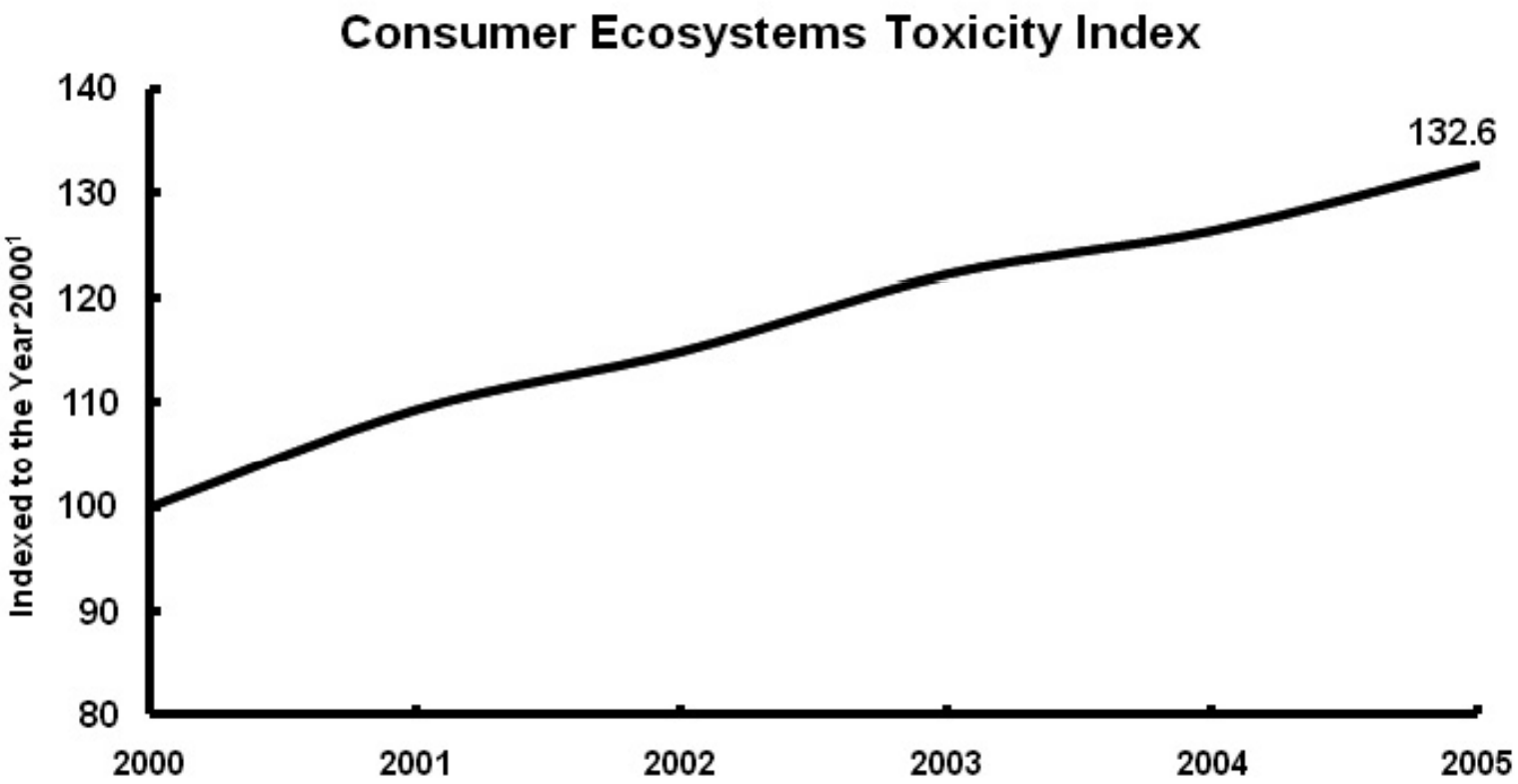
Source: Dr. Ken Geiser, UMASS Lowell

Washington State
Eliminating Wastes and Toxics



50 % reduction since Year 2000

Washington State
Toxics in Consumer Products

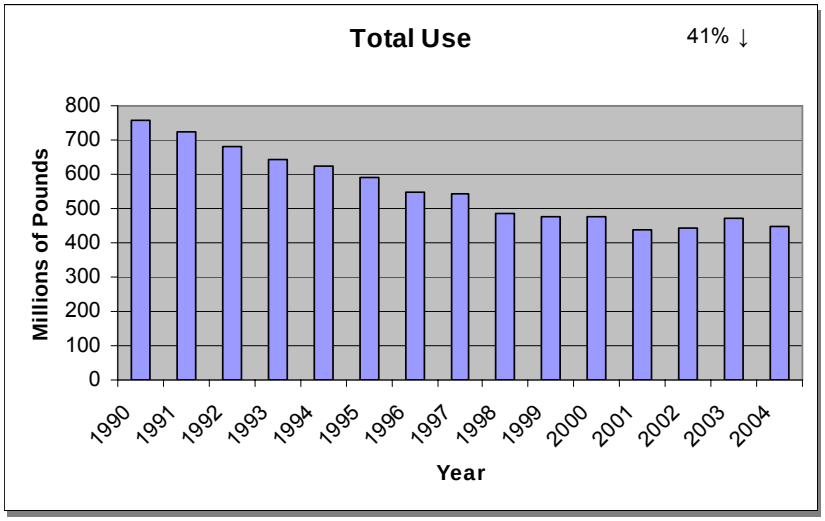


1. Data series is scaled to make the initial value 100. A value below 100 indicates lower emissions or a positive outcome.

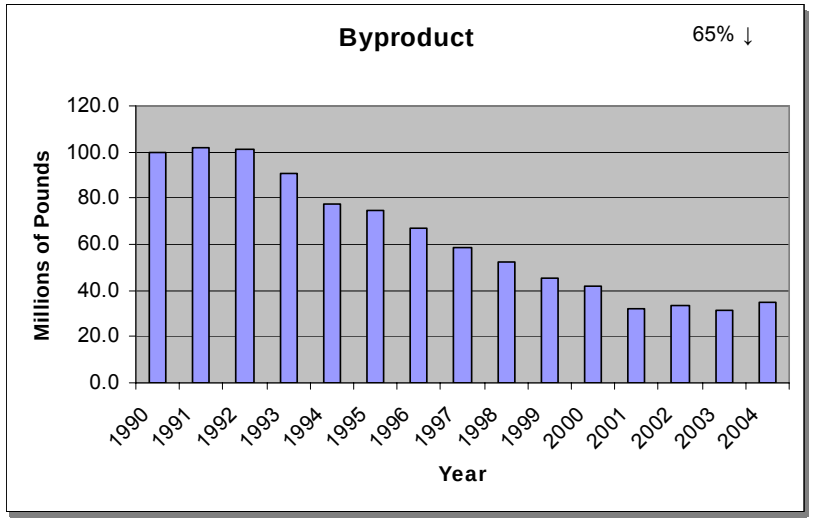
Toxicity of Products Appears to be Increasing

Results of the TURA Program

- Significant reduction in toxic chemical use, waste and emissions
- Firms improved efficiencies and saved money



Total use - 40%



Byproduct -71%

Source: Dr. Ken Geiser, UMASS Lowell

Washington State Pollution Prevention Results: 1992 – 2007

Reductions	Amount	Financial Savings Estimated
Hazardous waste	206,000,000 pounds	$412,000,000
Hazardous substances	**17,000,000 pounds**	
Solid Waste	106,000,000 pounds	$1,000,000
Energy conservation	161,000,000 kilowatt hours	$9,900,000
Water conservation	980,000,000 gallons	$1,800,000
Air pollution	55,000,000 pounds	
Total		$424,700,000

Source: "P2 Results Data System," www.pprc.org/measure/index.cfm, WA State Pollution Prevention Plan Results for 2007.

Hazardous substance use reduction is lagging. This is due to limited product information, lack of toxicity data and safer alternatives.

TUR Case Study

Toxic Solvent Replacement

- Berkshire Industries, Westfield, MA
- Electronics and aircraft parts manufacturer (150 employees)
- Replaced 30,000 pounds of trichloroethane (TCA) with an aqueous-based detergent

- Resulted in
  - reduced purchasing costs
  - $25,000 /yr operating and compliance savings
  - increased workspace due to less hazardous waste storage
- Retained primary customer generating $4 million in revenue/yr

-Mass OTA Case Study

Case Study: Lean Manufacturing

LEAN and Environment
CAN EXIST IN
SAME SPACE

Lean & Environment

- On-site -- assessment and implementation.

- Data driven – measurable business & environmental impacts.

- Empower employee teams at companies to --
  - "learn to see" wastes & toxics (time, energy, materials, risks, etc.)
  - identify and implement opportunities to eliminate all wastes.

Canyon Creek Cabinet Company
Lean & Environment Project

Maple

ROOMS

Lean & Environment Improvements

Millwork (Millennia Line)

- Reduced bottlenecks in the milling area with improved area and equipment layout and [pending] new saws
- Reduced lead time by 24%
- Reduced wasted wood

Coating operations

- Quick change-over of aqueous coatings
- Dedicated stations (solvent-based, NO changeover)
- Alternative coating system
- Improved Quality Control (QC) stations

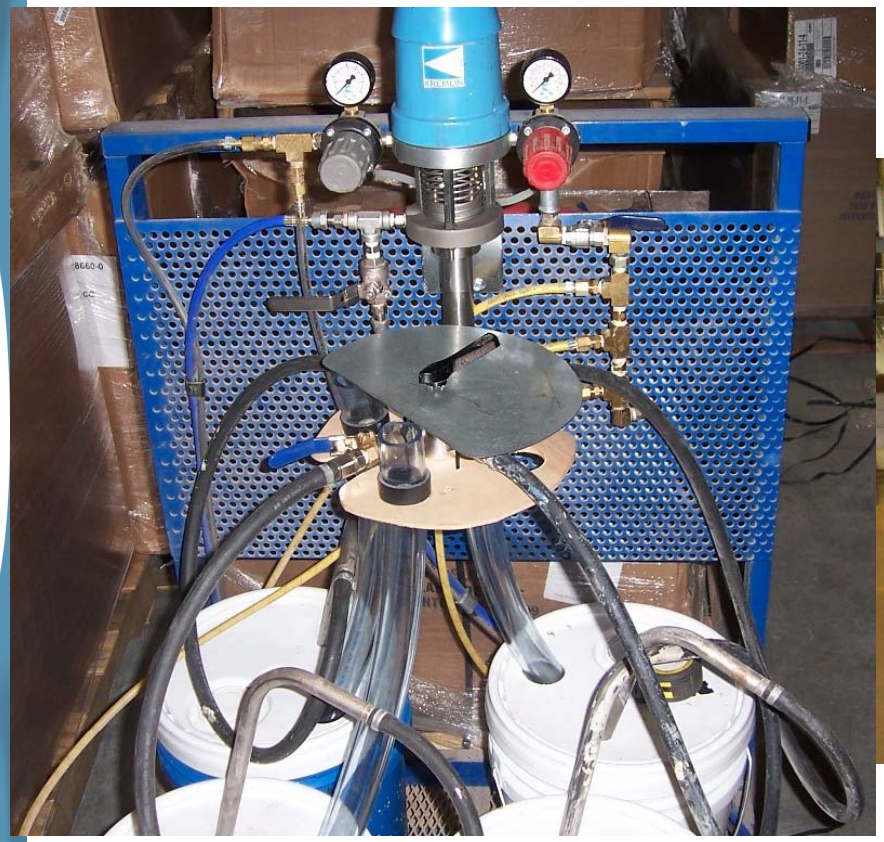
Dowel Machine-Old Area

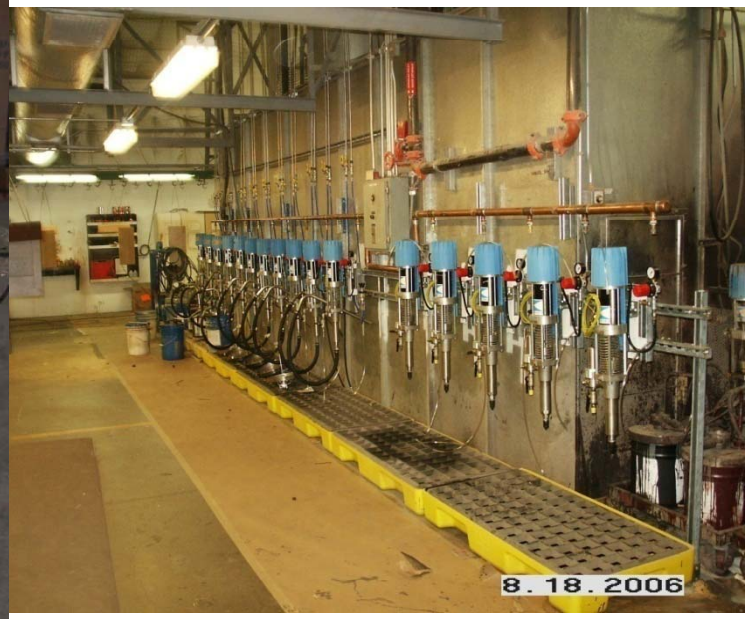
Before: Mixed up parts **After: “Kits for Building”**

Move equipment – Saving 649 miles of foot travel per year.

Paint Coatings…before

Paint Coatings …after





Combined Improvements

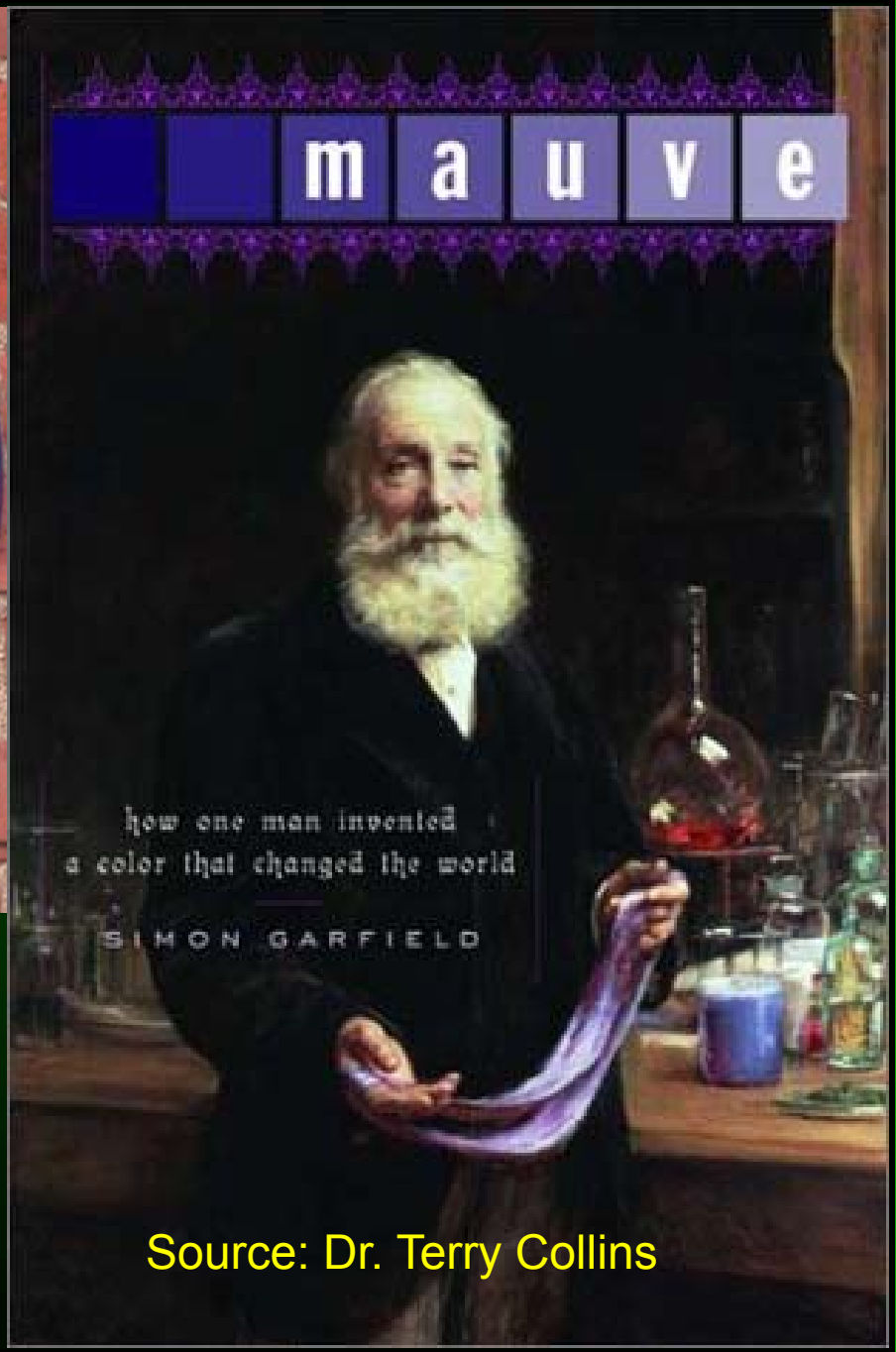
- **Reduce hazardous waste by 86,000 lbs/yr**
  - **Solvents and paint coatings**
- **Reduce hazardous material use by 68,000 lbs/yr**
  - **Solvents and paint coatings**
- **Reduced VOCs by 55,000 pounds/yr**
  - **Allowing 70% additional growth before Title V threshold**
- **Reduced solid waste by 508,000 pounds/year**
  - **Wood**
- **Reduced defects by 10,000 parts/year**
- **Reduced employee exposure**

Cost Savings (U.S. Dollars)

Raw Materials	$110K
Energy	$ 24K
Hazardous Substances	$ 129K
Dangerous Waste	$ 37K
Solid Waste (wood)	$ 58K
Rejects	$ 208K
Labor *reassigned	*$ 624K
Total	$1.2 Million

What are the “hidden” pollutant threats?

ca. 80,000 chemicals in commerce

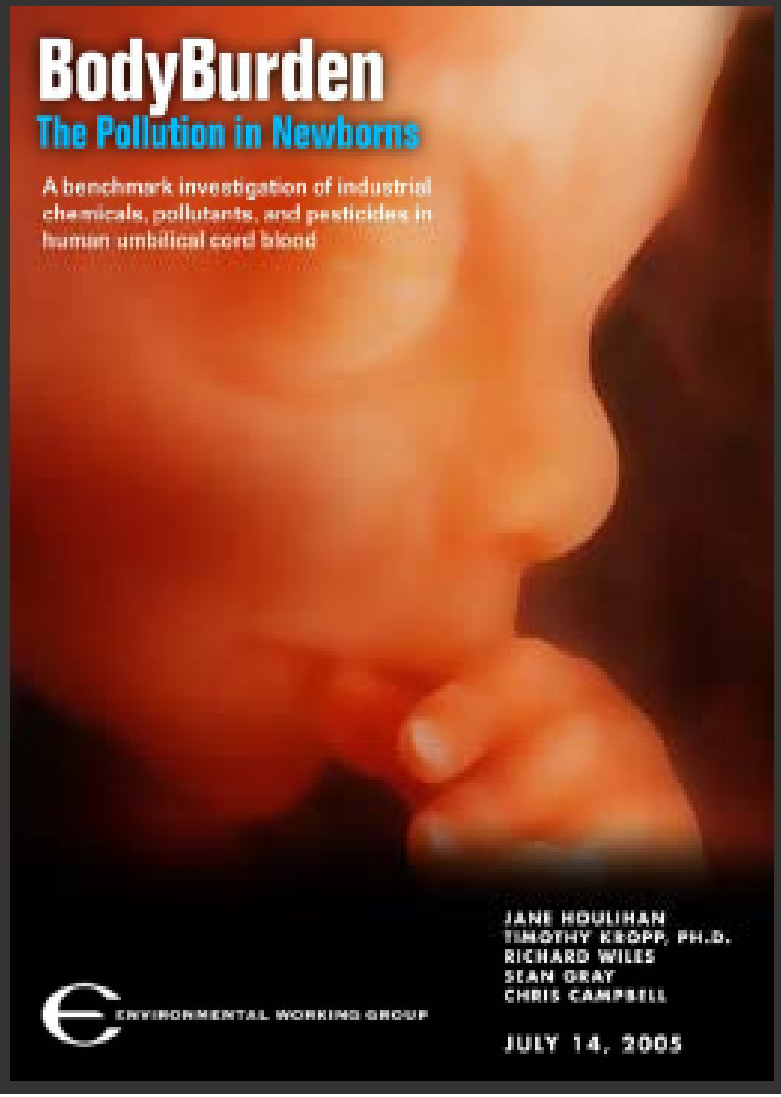


Source: Dr. Terry Collins

- Total daily California sales of chemical products alone: 644 million pounds (2,700 tankers)
- Total daily U.S. chemical production and importation: 42 billion pounds (623,000 tankers)

Source: TSCA IUR and CA Air Resources Board

287 synthetic chemicals & pollutants detected in umbilical cord blood



Chemicals and pollutants detected in human umbilical cord blood

Hg

Mercury (Hg) - tested for 1, found 1

Pollutant from coal-fired power plants, mercury-containing products, and certain industrial processes. Accumulates in seafood. Harms brain development and function.

PAH

Polycyclic aromatic hydrocarbons (PAHs) - tested for 18, found 9

Pollutants from burning gasoline and garbage. Linked to cancer. Accumulates in food chain.

BFR

Polybrominated dibenzodioxins and furans (PBDD/F) - tested for 12, found 7

Contaminants in brominated flame retardants. Pollutants and byproducts from plastic production and incineration. Accumulate in food chain. Toxic to developing and some (hormone) systems

PFC

Perfluorinated chemicals (PFCs) - tested for 14, found 9

Active ingredients or breakdown products of Teflon, Scotchgard, fabric and carpet protectors, food wrap coatings. Global contaminants. Accumulate in the environment and the food chain. Linked to cancer, birth defects, and more.

D/F

Polychlorinated dibenzodioxins and furans (PBDD/F) - tested for 17, found 11

Pollutants, by-products of PVC production, industrial bleaching, and incineration. Cause cancer in humans. Persist for decades in the environment, very toxic to developing endocrine (hormone) system.

OC

Organochlorine pesticides (OCs) - tested for 28, found 21

DDT, chlordane and other pesticides. Largely banned in the U.S. Persist for decades in the environment. Accumulate up the food chain, to man. Cause cancer and numerous reproductive effects.

PBDE

Polybrominated diphenyl ethers (PBDEs) - tested for 46, found 32

Flame retards in in furniture foam, computers, and television. Accumulates in the food chain and human tissues. Adversely affects brain development and the thyroid.

Cl

Polychlorinated Naphthalenes (PCNs) - tested for 70, found 50

Wood preservatives, varnishes, machine lubricating oils, waste incineration. Common PCB contaminant. Contaminate the food chain. Cause liver and kidney damage.

PCB

Polychlorinated biphenyls (PCBs) - tested for 209, found 147

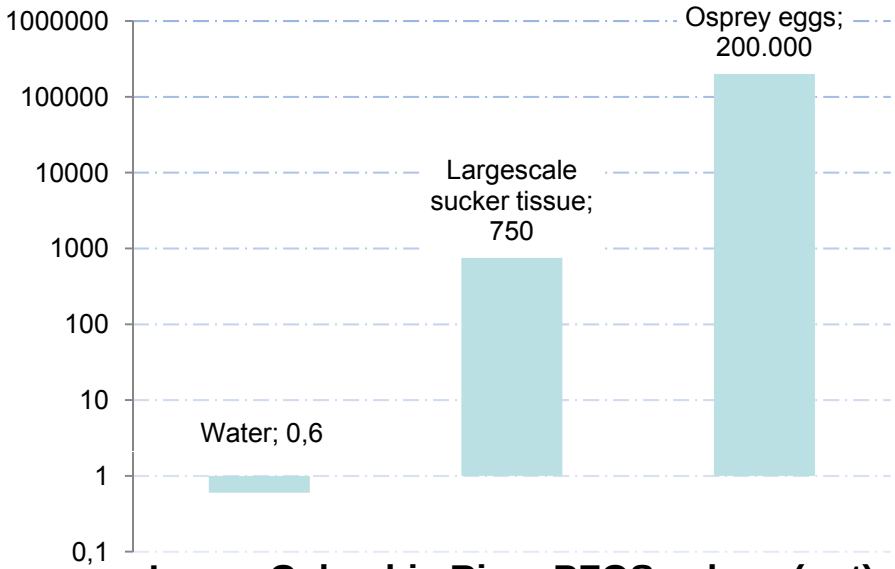
Industrial insulators and lubricants. Banned in the U.S. in 1976. Persist for decades in the environment. Accumulate up the food chain, to man. Cause cancer and nervous system problems.

Source: Chemical analyses of 50 umbilical cord blood samples were conducted by ARUP Analytical Services (Sydney, BC) and Kutt Research Ltd. (Winnipeg, MB).

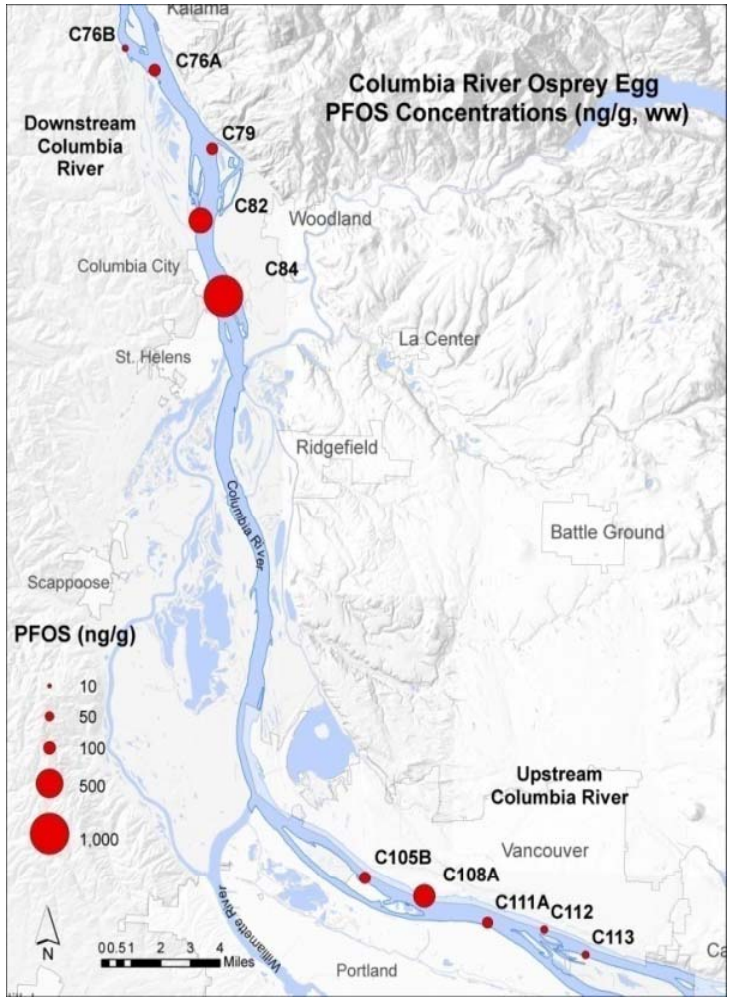
Emerging Contaminants

Perfluorinated Compounds (PFOS)

- Highly bioaccumulative contaminant
- Few states have data
- Baseline studies in surface waters, fish tissues, and wastewater for CAP development
- Osprey eggs in the Lower Columbia River



Lower Columbia River PFOS values (ppt)



State Chemicals Policy: Washington State Actions

2006 - Persistent, Bioaccumulative & Toxic rule

- Established Chemical Act Plan process & content

2007 Polybrominated diphenyl ether ban

- Required Ecology to conduct alternative assessment for deca-BDE before deca ban could take effect

2008 Children's Safe Product Act (CSPA)

- Required Ecology to establish a list of chemicals of high concern to children (CHCCs) and prioritize list to begin with the 'worst of the worst' toxic chemicals in children's products

2010 Bisphenol A (BPA) ban

2011CSPA Amendments introduced (not passed)

Case Study: *Washington State's PBT Rule / List*

Metals
- Methyl-mercury

Combustion By-Products
- Polyaromatic Hydrocarbons (PAHs)
- Chlorinated Dioxins & Furans
- Brominated Dioxins & Furans

Metals of Concern
- Cadmium
- Lead

Banned Pesticides
- Aldrin/Dieldrin
- Chlordane
- DDT/DDD/DDE
- Heptachlor Epoxide
- Toxaphene
- Chlordecone
- Endrin
- Mirex

Banned Flame Retardants
- Hexabromobiphenyl

Banned Organic Chemicals
- Polychlorinated Biphenyls (PCBs)

Flame Retardants
- Polybrominated Di-phenol ethers (PBDEs)
- Tetrabromobisphenol A
- Hexabromocyclododecane
- Pentachlorobenzene

Organic Chemicals
- 1,2,4,5-Tetrachlorobenzene
- Perfluorooctane Sulfonates (PFOS)
- Hexachlorobenzene
- Hexachlorobutadiene
- Short-chain Chlorinated Parraffins
- Polychlorinated Naphthalenes

Case Study: Washington State's Chemical Action Plans

- Completed:
  - Mercury (2003)
  - Polybrominated diphenyl ethers (PBDEs) (2006)
  - Lead (2009)
- Proposed:
  - Polyaromatic Hydrocarbons (PAHs) - 2011
  - Perfluorooctane Sulfonates (PFOS) - 2013

Case Study Legislation: 2008 Washington State Children's Safe Products Act (HB 2647)

- Children's Products
- Identify Chemicals of High Concern to Children (CHCC)
- Product Reporting (beginning in 2012):
  - Chemical name (chemical abstracts service registry number).
  - Product category or categories in which it occurs.
  - The product component or components within each product category in which it occurs.
  - A brief description of the function, if any, of the CHCC in each product component within each product category.
  - The total amount of the CHCC by weight contained in each product component within each product category.

Several other states have similar legislation, including Maine and Minnesota.

What have we learned?

- Avoid working backwards
  - Detection ⏩ exposure ⏩ health concern ⏩ regulation ⏩ alternative
- Safer Alternatives
- Green chemistry up front
- State legislation & policy drivers
- Modernize U.S. pollution prevention Act to provide national action (Canadian Environmental Protection Act of 1999)

Driving Transformation:
Chemicals Management Policies
Innovations in the United States

Source:
Ken Geiser, Ph.D.
Professor of Work Environment
University of Massachusetts
Lowell

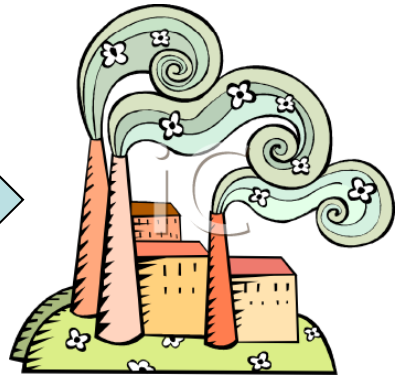
Vision - A sustainable future demands that we achieve by 2020 the Sound Management of Chemicals

- International commitment made at the United Nations Conference on Environment and Development (1982)

- Commitment reinforced through the Dubai Declaration and the Strategic Approach to International Chemicals Management (2007)

Sound Chemical Management Strategies

Materials



Production Processes

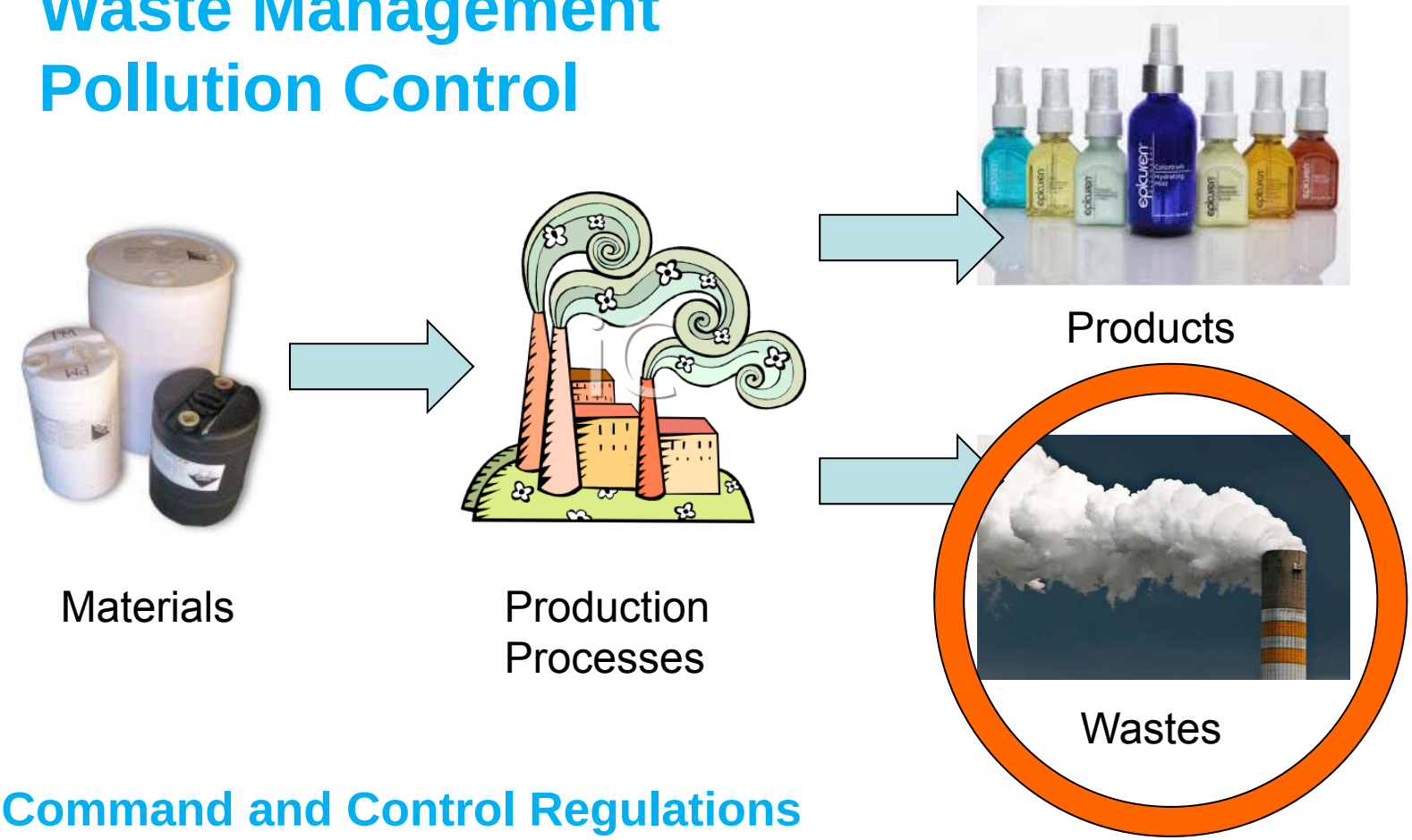
Products

Wastes

Source:
Ken Geiser, Ph.D.
Professor of Work Environment
University of Massachusetts Lowell

Sound Chemical Management Strategies

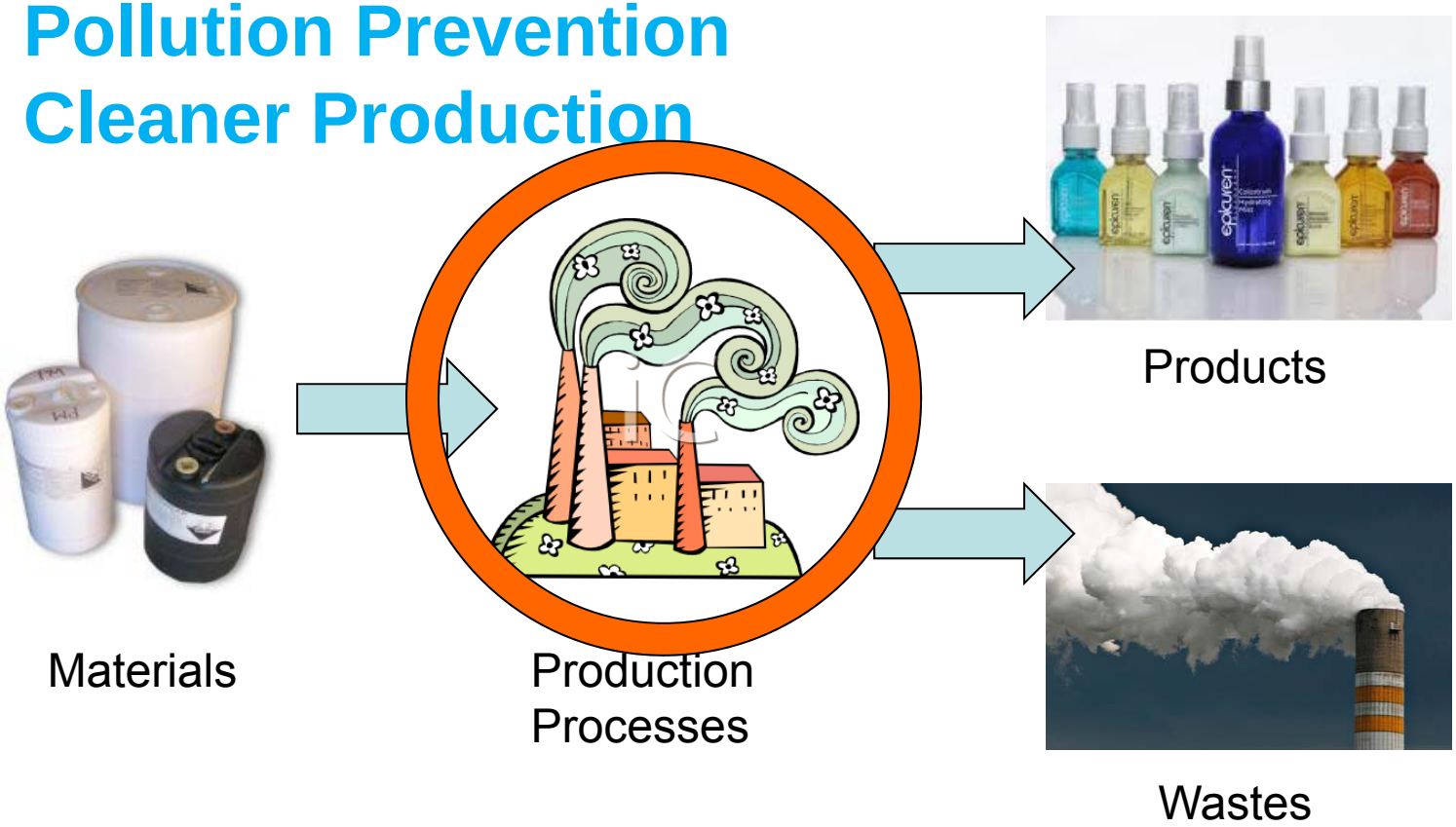
Waste Management
Pollution Control



Command and Control Regulations
1970s to 1980s

Sound Chemical Management Strategies

Pollution Prevention
Cleaner Production

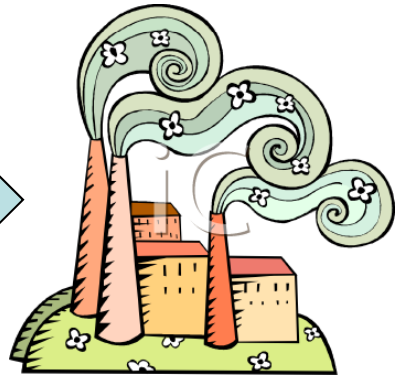


Clean Production Audits
Facility Planning and Technical Assistance
1980s-1990s

Sound Chemical Management Strategies

Safer Product Policy
Chemicals Policy

Materials



Production
Processes

Products

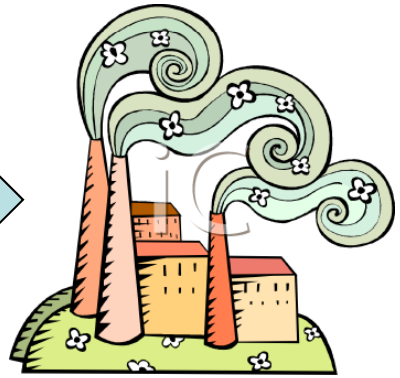
Wastes

Design for Environment
Life Cycle Assessment and Alternatives Assessment
2000s

Sound Chemical Management Strategies

Green Chemistry

Materials



Production Processes

Products

Wastes

Chemical Design

Chemicals Policy in the United States

National policy sets the framework

- Media (air, water, soil) policy
- Occupational and environmental exposure
- Direct regulation (pesticides, industrial chemicals, chemicals in products)

States can set more restrictive policy

- On wastes
- On chemicals that affect public health

Some municipalities (on mercury, dioxin) also set policy

U.S. policy has changed little since 1970s

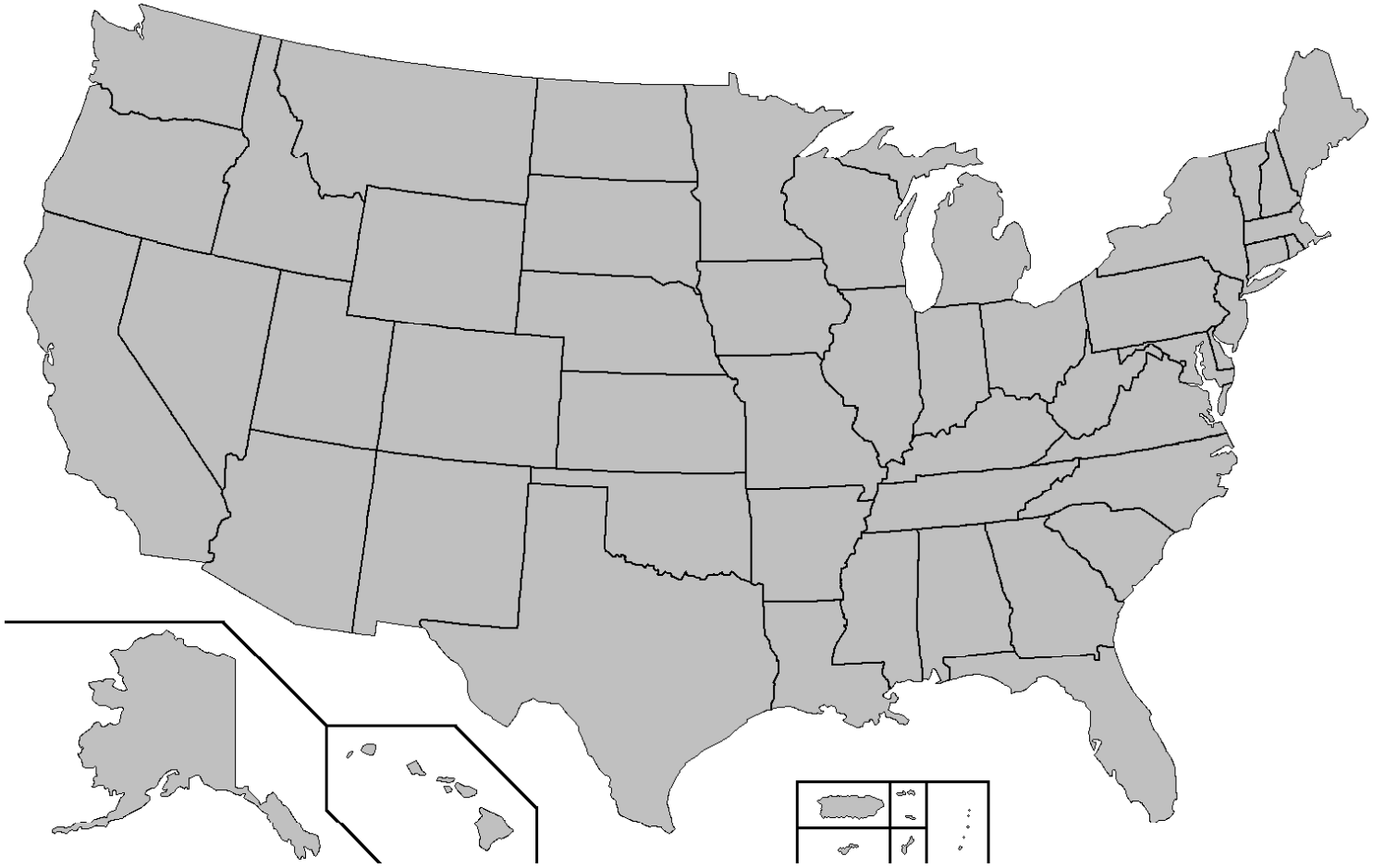
Focus on single environmental media protection policies:

Clean Air Act (1970)
Clean Water Act (1972)
Safe Drinking Water Act (1974)
Resource Conservation and Recovery Act (1976)

Toxic Substances Control Act (1976) –
only federal statute never reauthorized

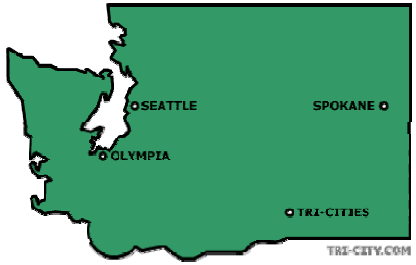
Primarily Waste Management and Pollution Control

States have been laboratories and drivers of chemical policy innovation

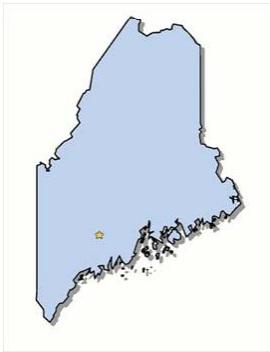


State Safe Chemicals Policy

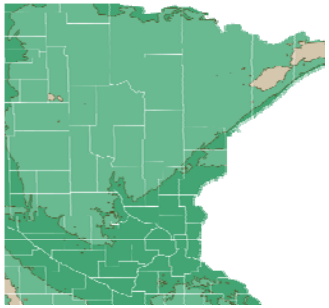
2008 **Washington**-- *Children's Safe Products Act*



2009 **Maine**-- *Act to Protect Children's Health and the Environment from Toxic Chemicals in Toys and Children Products*



2010 **Minnesota**-- *Toxics Free Kids Act*



Evolution of State Safe Chemicals Policy

- Shift from Toxics Policy to Chemicals Policy
  - single chemical bans to procedures for chemical transition
  - prioritizes chemicals of concern

- Shift from Phase-outs to Phase-ins
  - hazardous chemical bans to safer alternatives
  - promotes alternatives assessment and substitution

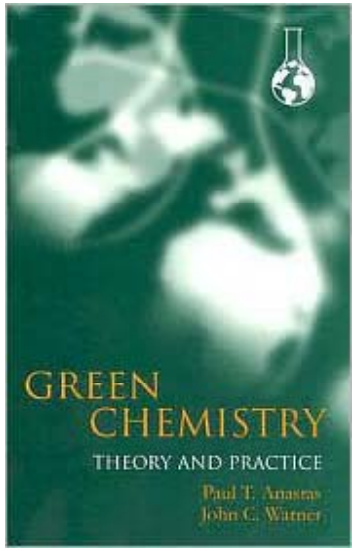
- Emergence of Environmentally Preferred Purchasing
  - rise of effects-based purchasing specifications

State Green Chemistry Programs

Green Chemistry:

"Green chemistry is the utilization of a set of principles that reduces or eliminates the use or generation of hazardous substances in the design, manufacture and application of chemical products."

-Anastas and Warner, *Green Chemistry: Theory and Practice*, 1998



2005 Michigan establishes Green Chemistry Strategy

2006 California launches Green Chemistry Initiative

2011 Minnesota, New England, Pacific Northwest (OR, WA) start projects

The Advancement of State Chemicals Policies to Promote the Transition to Safer Chemicals

32 States - Mercury in Products Laws

Enacted or proposed legislation to ban mercury in products

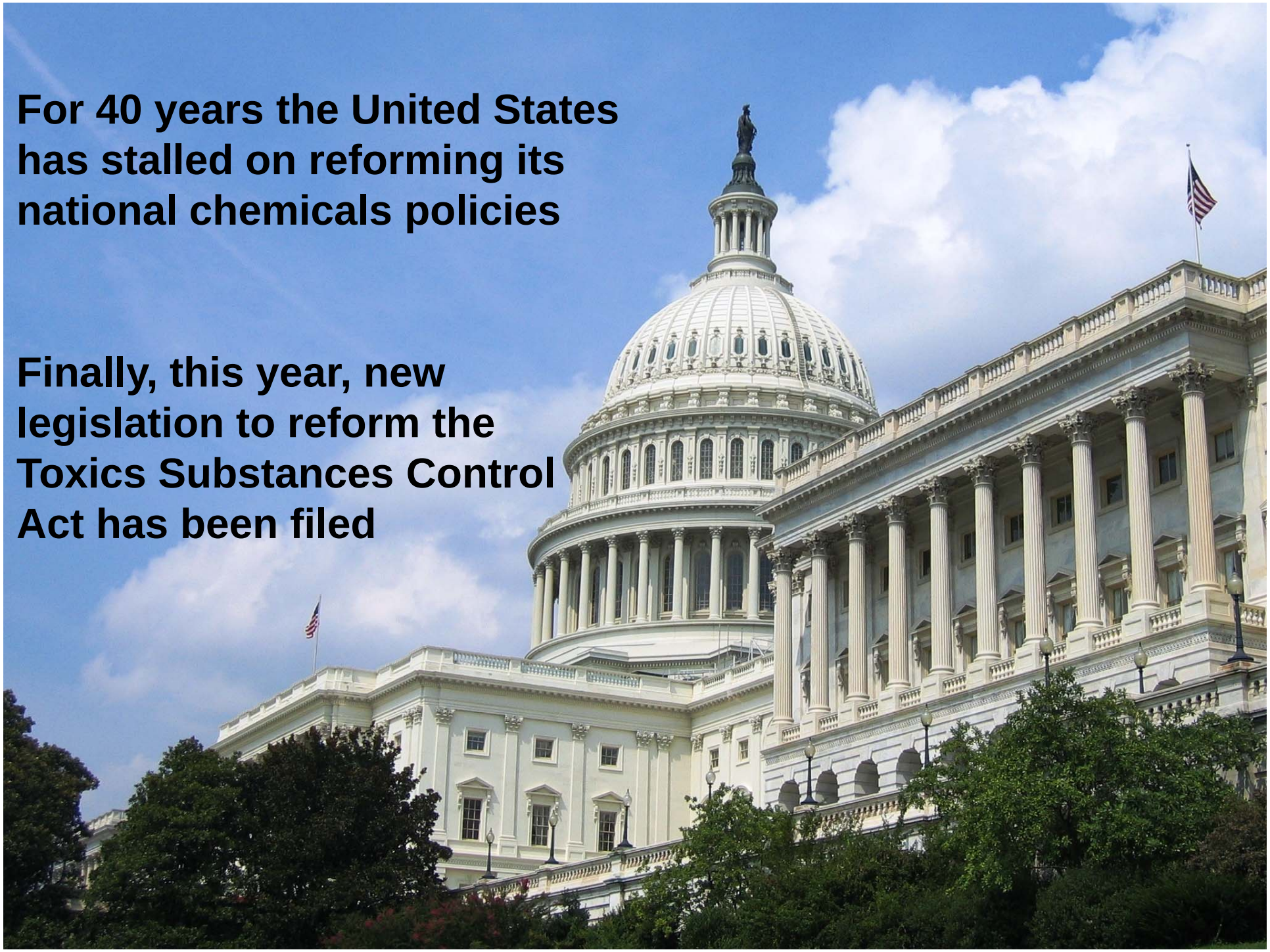
12 Brominated Flame Retardant (PDBE) Laws

Laws to prohibit PDBEs in products

14 Lead in Products Laws

Enacted laws to ban lead in various products

2009 -2010 State Legislative Action: 66 Bills enacted by state legislatures, including 18 single chemical restriction laws (bans).



For 40 years the United States has stalled on reforming its national chemicals policies

Finally, this year, new legislation to reform the Toxics Substances Control Act has been filed

Concerns – Toxic Substance Control Act

- Federal TSCA is more than 35 years old and need to be updated.

- TSCA has proven inadequate for providing protection against chemical risks that the public rightfully expects.

- Since 1976 only 5 chemicals have been successfully regulated under TSCA's authority to ban chemicals.

- New markets – REACH, China, Korea

Introduction to the U.S. Toxic Substances Control Act of 1976

TSCA Overview

- Passed in 1976 following several years of debate and revisions
  - Notable incidents involving chemicals
  - CEQ 1971 Report Toxic Substances
    - Lack of data on chemicals in commerce
    - Lack of government oversight
  - Designed as an early warning system to identify potential dangers before chemicals are widely dispersed through commerce

Source: Joel A. Tickner, ScD
UMASS, Lowell Center for Sustainable Production

Congressional Intent

"The most effective and efficient time to prevent unreasonable risks to public health or the environment is prior to first manufacture…it is at this point that the costs of regulation in terms of human suffering, jobs lost, wasted capital expenditures and other costs are lowest."

Source: Joel A. Tickner, ScD
UMASS, Lowell Center for Sustainable Production

TSCA Purposes

- To encourage or require industry to develop adequate data on the health and environmental effects of chemicals
- To regulate chemicals that pose unreasonable risk of injury to health or the environment and to take action against imminent hazards
- Not to unnecessarily impede technologic innovation (subservient to second).

Source: Joel A. Tickner, ScD
UMASS, Lowell Center for Sustainable Production

TSCA Definitions

- Covers industrial chemicals and excludes pesticides, food additives, drugs, cosmetics and preparations
- Regulates both manufacturers, processors (including importers)
- Distinguishes new from existing substances. (Grandfathered chemicals)

Source: Joel A. Tickner, ScD
UMASS, Lowell Center for Sustainable Production

Why States believe TSCA isn't working.

•The U.S. Environmental Protection Agency (EPA) is required to *prove harm* before it can regulate a chemical.

•TSCA *does not mandate* business to conduct safety assessments for the existing chemicals used in commerce. New chemicals undergo a severely time-limited and highly data-constrained review by the agency and no minimum data set is required for new chemicals.

•The "unreasonable risk" cost-benefit standard in TSCA has prevented EPA from adopting regulations even for chemicals of highest concern. For example, EPA was unable to adopt regulations for asbestos.

Why States believe TSCA isn't working.

- To require testing or other action, EPA must adopt regulations, which can take years.

- Companies are free to claim confidential business information with little, if any, justification, denying access to states, the public, businesses, and workers. More than 16,000 of the roughly 84,000 chemicals included on the TSCA inventory were recently classified as confidential.

- EPA has insufficient authority to obtain health and safety information from the chemical industry.

STATES' PRINCIPLES ON REFORM OF THE TOXIC SUBSTANCES CONTROL ACT DECEMBER 2, 2009

Require Chemical Data Reporting. Chemical and product manufacturers should be required to develop and provide chemical health and safety information, as well as exposure and use data, including the presence of toxic chemicals in products and the associated chemical hazards and risks, to regulators, businesses, and the public.

Demonstrate Chemicals and Products are Safe. Manufacturers should provide the necessary information to regulators to conclude that new and existing chemicals and products in commerce are safe and do not endanger the public or the environment. The public has a right to expect that the products they use are safe.

Prioritize Chemicals of Concern. Government should identify and prioritize chemica of concern in order to regulate the most problematic chemicals in commerce, and have the authority to take timely action to protect people and the environment. Sufficient resources should be made available to support these actions.

Protect the Most Vulnerable. Chemical regulation should be designed to protect the most vulnerable, including pregnant women and children.

Promote Safer Chemicals and Products. Based on green chemistry principles, manufacturers should be required to assess and identify safer alternatives to problemati chemicals of concern. Government should establish protocols for evaluating potential alternatives to chemicals of concern.

Address Emerging Contaminants. Emerging chemicals of concern, including nanoscale materials, need to be assessed for public and environmental safety before the go into widespread commerce and use.

Strengthen Federal Law & Preserve States' Rights. States acknowledge the need fo strong federal chemical regulation system, while expressly preserving the authority of state and localities to implement measures to manage chemicals of concern.

Fund State Programs. Effective state-federal governance should enhance the role of states in TSCA implementation, promote data and information sharing, and provide sustained funding for state programs. The states are in a unique position to provide innovative, cost-effective solutions for chemicals of concern prioritization, interstate da sharing, and safer chemical alternatives assessments.

States' Principles on Reform of the Toxic Substances Control Act
December 2, 2009 State Signatures

Linda S. Adams, Secretary
California Environmental Protection Agency

Amey W. Marrella, Commissioner
Connecticut Department of Environmental Protection

Douglas P. Scott, Director
Illinois Environmental Protection Agency

David P. Littell, Commissioner
Maine Department of Environmental Protection

Shari T. Wilson, Secretary
Maryland Department of the Environment

Laurie Burt, Commissioner
Massachusetts Department of Environmental Protection

Steven E. Chester, Director
Michigan Department of Environmental Quality

Thomas S. Burack, Commissioner
New Hampshire Department of Environmental Services

Mark N. Mauriello, Acting Commissioner
New Jersey Department of Environmental Protection

Pete Grannis, Commissioner
New York State Department of Environmental Conservation

Dick Pedersen , Director
Oregon Department of Environmental Quality

Justin G. Johnson, Commissioner
VT Department of Environmental Conservation

Ted Sturdevant, Director
Washington State Department of Ecology

California | Connecticut | Illinois | Maine | Maryland | Massachusetts | Michigan | New Hampshire | New Jersey | New York | Oregon | Vermont | Washington

TSCA Reform is key issue for states –

- Environmental Council of States Resolution
  - shift the burden of proof to industry
  - calls for responsible TSCA reform
  - coverage of new and in-use chemicals
  - quick action when needed
  - assessment of safer alternatives
  - collaboration and information sharing between federal and state programs.

ECOS

- 30 states have passed chemical policy laws ranging from comprehensive chemical policy laws to bans on specific high risk chemicals.

2011Toxic Chemical Safety Act (proposed by Senator Frank Lautenberg, D-New Jersey)

- Improves EPA's authority to reduce risk from toxic chemicals.

- Requires chemical industry to submit to EPA a basic set of chemical information on all chemicals.

- Requires firms to certify that their chemicals meet a defined safety standard.

Toxic Chemical Safety Act (proposed)

- Phases out several high priority PBTs.
- Requires biological monitoring of chemicals of high concern.
- Promotes green chemistry research and development.
- Addresses public exposure of toxic chemicals in certain “hot spots” to help communities.

California Illinois Minnesota Pollution Control Agency MDE Maryland DEQ State of Oregon Department of Environmental Quality DEPARTMENT OF ECOLOGY State of Washington VERMONT ENVIRONMENTAL CONSERVATION

States' leaders urge Congress to fix federal toxic law

OLYMPIA— A group of environmental leaders from the states of California, Illinois, Oregon, Maryland, Minnesota, Vermont and Washington today commended Sen. Frank Lautenberg, D-New Jersey, for introducing comprehensive legislation that reforms the 35-year-old Toxic Substances Control Act (TSCA).

TSCA is the primary federal environmental law that regulates the safety of the many tens of thousands of chemicals used every day in the United States. The federal law is outdated, ineffective and badly in need of an overhaul.

"We need a fix at the federal level so that we don't have to do this in the states," said Ted Sturdevant, Director of the Washington State Department of Ecology. "States have limited resources and lack the tools of federal agencies to drive a national program. However, until we have a national solution, we will continue to act on chemical safety concerns in our states."

In the absence of an effective federal chemical safety law, states have provided leadership in the effort to advance sound chemicals management policy. Many states have passed their own chemical management legislation. During the past eight years, for example, 18 states have passed legislation ranging from comprehensive chemical safety laws to bans on specific high-risk chemicals.

States increasingly have had to grapple with the unintended consequences of unsafe chemicals in commerce. Of particular concern are persistent bioaccumulative toxins, known as PBTs.

"It would be tremendously beneficial to have federal action on the 'worst of the worst' chemicals," said Paul Aasen, Minnesota Pollution Control Agency Administrator. "TSCA reform can be the driver to phase out these chemicals and to spur new green chemicals that are protective of human health and the environment."

State regulators support changes to the current law that would, among other things:

- Give EPA the authority to establish chemical safety standards and to take risk management actions when chemicals fail to meet those standards.
- Shift the burden to industry to demonstrate that chemicals meet safety standards.
- Make available to the public more data and information now claimed as confidential.

"We need a fix at the federal level so that we don't have to do this in the states"

Ted Sturdevant, Director WA State Department of Ecology – April 2011

BizNGO.org Guiding Principles for Chemicals Policy

1. Know and Disclose Product Chemistry
2. Assess and Avoid Hazards
3. Commit to Continuous Improvement
4. Support Public Policies & Industry Standards

Source: Clean Production Action

Construction Specialties

Chemicals Policy ISO 14001

The demand for environmentally responsible and relevant building products is growing rapidly. Building owners, Architects, contractors and building occupants want products made with chemicals that have low to no toxicity and which at the end of the product lifecycle are used to create new products and/or materials.

As we daily seek to fulfill our Corporate Mission to become a "*World Leader of quality specialty building products and services*", following our vision, "*Creating products that make buildings better*", we herein subscribe to these four primary guiding principles as the foundation of our Chemicals Policy.

1. **Know and disclose product chemistry.** We will identify the substances associated with and used in our products across their lifecycle and will increase as appropriate the transparency of the chemical constituents of our products, including public disclosure of chemicals of high concern and 3rd-party certification(s). Please note that substances deemed confidential will not be identified or disclosed to the public.
2. **Assess and avoid hazards.** We will determine the hazard characteristics of chemical constituents and formulations in our products, use chemicals with inherently low hazard potential, prioritize chemicals of high concern for elimination, minimize exposure when hazards cannot be prevented, and redesign products and processes to avoid the use and generation of hazardous chemicals.
3. **Commit to continuous improvement.** We will establish operational governance structures; policies and practices that create a framework for the regular review of product and process chemistry, and that promote the use of chemicals, processes, and the redesign/creation of products with inherently lower hazard potential.
4. **Support public policies and industry standards that:** advance the implementation of the above three principles, ensure that comprehensive hazard data are available for chemicals on the market, take action to eliminate or reduce known hazards and promote a greener economy, including support for green chemistry research and education.

The above four principles shall be managed and acted upon within our ISO 14001 structure and audited accordingly for ongoing compliance.

C/S reserves the right to disclose, or not disclose, its Confidential Business Information. It is the intent of this Chemicals Policy that products requiring CBI protection be vetted by our 3rd Party Certification consultant to ensure alignment with this Policy. 3rd Party Certifications may be made available upon written request.

Implementation will occur over a period of time.

U.S. EPA's Enhanced Chemicals Management Efforts

- New regulatory risk management actions
- Development of Chemical Action Plans
- For the first time ever, using TSCA authority to create a Chemicals of Concern list
- Requiring industry to submit information needed to understand chemical risks.
- Increasing public access to information about chemicals.

TSCA & Nanomaterials

- Since 2005, EPA has received and reviewed over 100 new chemical notices under TSCA for nanoscale materials.
  - Pre-manufacturing Notices (PMNs) reviewed for carbon nanotubes, fullerenes, quantum dots, nano metal oxides and others.
- EPA uses rules and consent orders to address risks
  - Significant New Use Rules (SNURs) issued for carbon nanotubes.

European Union REACH Implementation

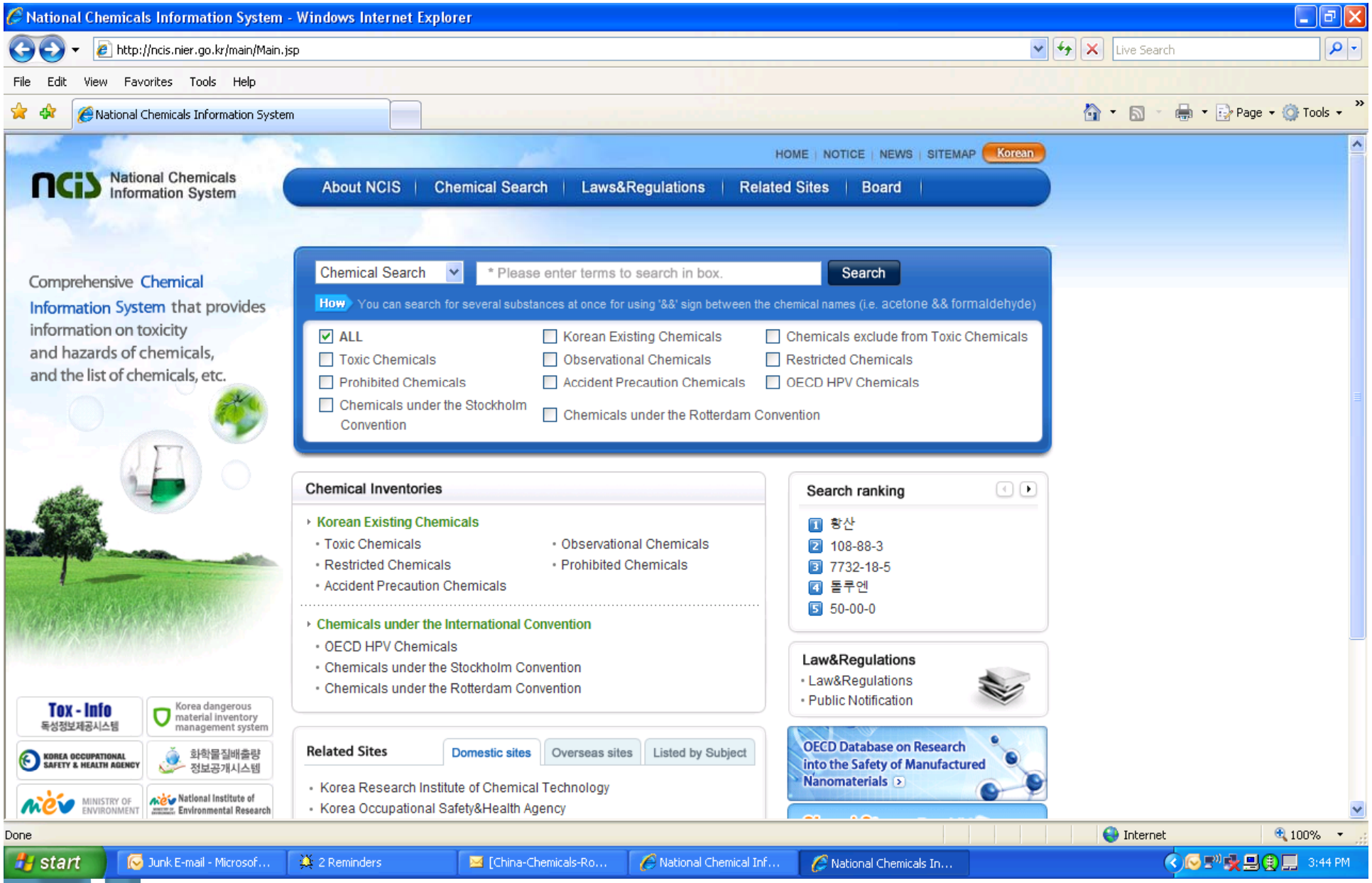
•24,675 requests for registrations were submitted by the deadline of 30 November 2010 (lower than anticipate)

•2012 REACH review: REACH requires the Commission to do three studies by 1 June 2012: 1) the review of European Chemicals Agency, 2) the low tonnage review and 3) the review of the scope of REACH.

•REACH authorisation: December 17 2010, ECHA issued a 2nd recommendation of 8 priority substances for inclusion in Annex XIV (substances subject to authorisation).

•eChemPortal, launched in December 2010 (www.oecd.org/ehs/echemportal)

•Researching nanotechnology



Korea National Chemical Information System

Conclusions / Lessons Learned

- Brazil and others can “leapfrog” via green chemistry and progressive chemicals policies.
- Focus on PBTs and hazardous substance reduction efforts first.
- Share chemical toxicity data.
- Harmonize efforts with jurisdictions (EU, U.S., and China).
- Avoid the “chemical-by-chemical” & “product by product” approach if possible.
- Try new polices and programs to drive national action.

It’s my environment

É meu meio ambiente

Thank You!

www.P2.org

NATIONAL POLLUTION PREVENTION ROUNDTABLE

WASHINGTON STATE Department of Ecology

Contact: ken.zarker@ecy.wa.gov or Twitter @kzarker