Chemicals without Harm

Policies for a Sustainable World

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There is a problem with chemicals:

Too many of the products that we need and use are made with hazardous chemicals

Phthalates

BPA

PBDEs

PFCs

Lead

Formaldehyde

Toluene

BPA is found in 9 out of 10 Americans

232 toxic chemicals are found in umbilical cord blood of newborns in the US

The Conventional Policy Response to Hazardous Chemicals

Federal Chemical Control Laws on the 1970s

- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
- Federal Food, Drug and Cosmetics Act (FFDCA)
- Toxic Substances Control Act (TSCA)
- Consumer Product Safety Act of (CPSA)

For some 40 years we have relied on government regulations to manage the risks of dangerous chemicals

Limits of Federal Chemical Control Laws

- The laws depended on government to determine risks
- The processes focused on exposure control (risks) rather than reducing inherent hazards

- The processes addressed chemicals one-by-one
- The laws did not generate sufficient chemical information

- The processes have been slow, adversarial and costly
- The laws have not stimulated green chemistry and safer chemicals

Reforming the Toxic Substances Control Act

- Senate –S. 697
- Creates Safety Assessments, Safety Standards, Safety Determinations
- EPA identifies 10 High Priority Substances per year with 25 maximum and 10 Low Priority Substances with 25 maximum
- States are pre-empted when EPA begins an assessment
- Develops a Sustainable Chemistry Program
- Sets a fee

- House—H.R. 2576
- EPA conducts 10 or more Risk Evaluations per year
- States are pre-empted when EPA finds a substance poses no unreasonable risk
- EPA publishes a list of Persistent, Bioaccumulative and Toxic Substances
- Sets a fee

TSCA reform will provide necessary, but modest improvements

Pressure for safer chemicals is growing

Consumers are increasingly concerned about the Safety of Chemicals

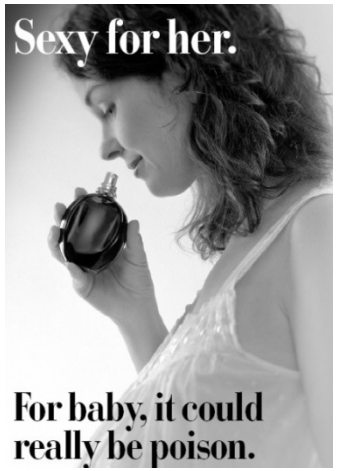
Suffolk County Bans Bisphenol A

CDC Biomonitoring Study

Declining sperm counts in Men

Maine warnings on Mercury in Fish

PBDEs found in Breast Milk



Washington bans phthalates in Toys

Santa Monica finds MBTE in Drinking Water

Mattel recalls lead painted Toys

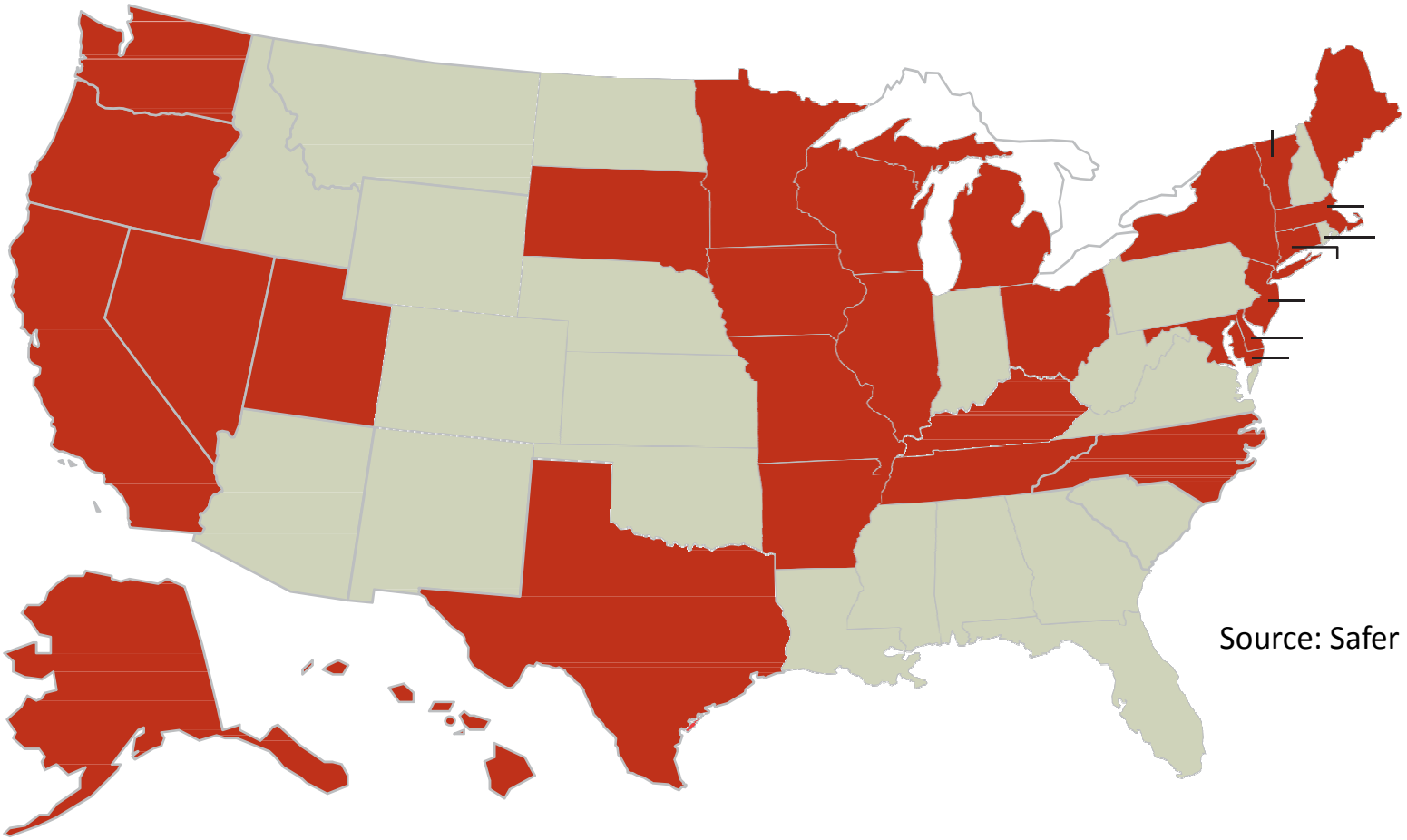
European Union moves to ban Nanoparticles in Food

Growing market for Organic Foods

EPA to consider Perchloroethylene in Drycleaning

States are enacting Chemical Policy Laws

States Considering or Enacting Chemical Policies, 2013



Source: Safer States

However, not all states are covered

NGOs are conducting successful Advocacy Campaigns

- Mercury in medical devices
- Lead in children's toys

- Parabens in cosmetics
- Trichlosan in personal care products
- Brominated flame retardants in upholstered furniture

- Bisphenol A in water bottles, can linings and thermal papers
- Phthalates in building materials
- Perfluorinated compounds in garments

However, most are single substance campaigns

Product Manufacturers are creating Safer Chemical Programs

Limited Impact due to Confidentiality

Retailers are launching Safer Chemical Selection Programs

STAPLES

Walmart

THE BODY SHOP

Wegmans

CVS pharmacy

H&M

patagonia

Boots

WHOLE FOODS MARKET

LOWE'S

TARGET

Limited by lack of disclosure in Supply Chains

Foreign and International Governments are creating New Chemical Policies

- European Union's REACH is
  - registering all chemicals,
  - developing rich chemical information profiles
  - Requiring authorization for substances of very high concern

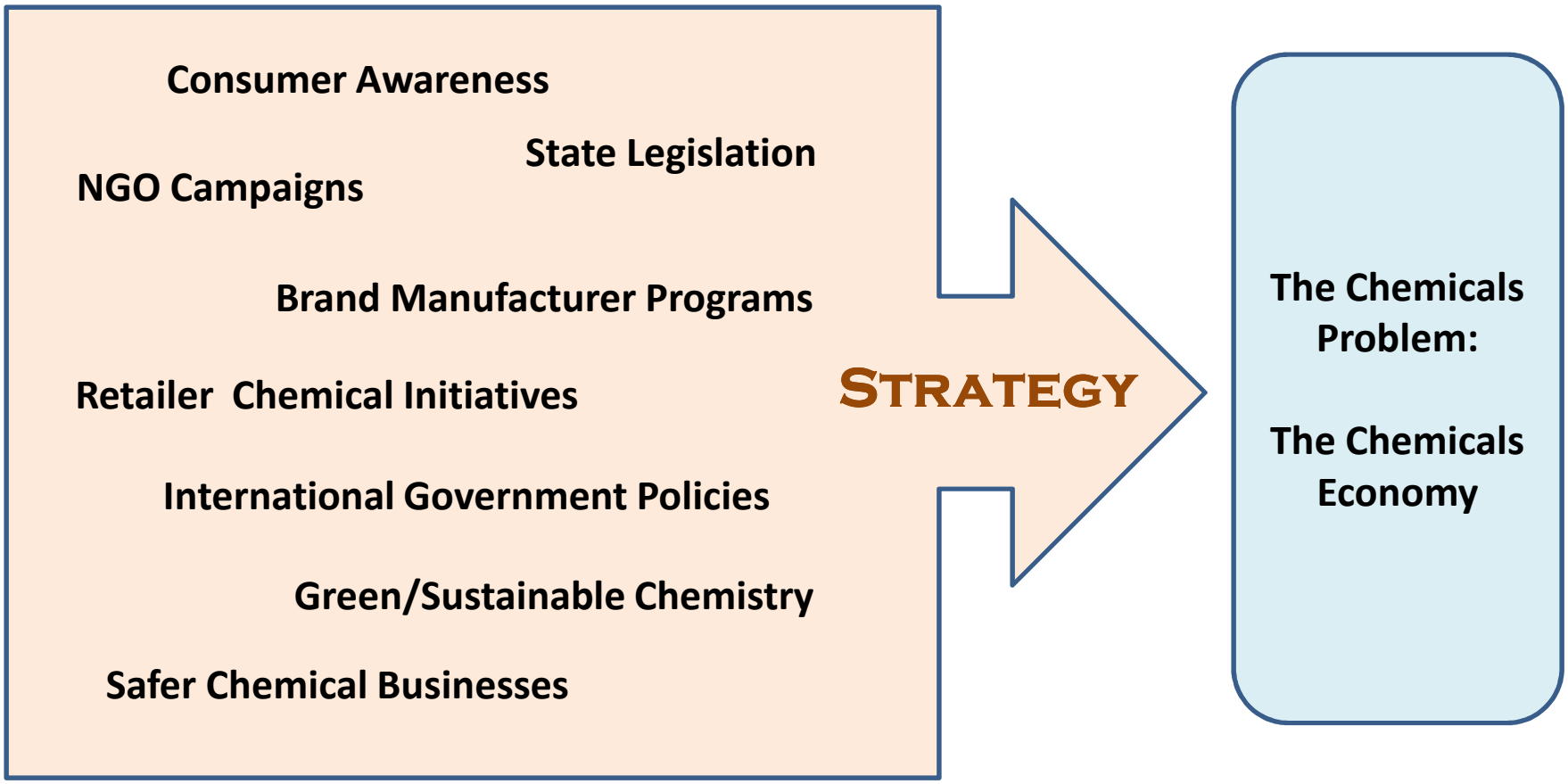
- European Union's Product Directives are restricting hazardous chemicals in products

- Stockholm, Rotterdam, Basil Conventions and SAICM are setting global policies on chemicals

There are many safer chemical initiatives…

…however, they are fragmented and not scaled to adequately address the chemicals problem

We need to build a Comprehensive Safer Chemical Strategy



Principles for a Safer Chemicals Policy Framework

- **Comprehensive**—covers all chemicals
- **Transparent**—increases chemical information and public knowledge
- **Participatory**—engages multiple parties

- **Hazard-based**—focuses on intrinsic properties
- **Transformative**—transitions from high hazard to lower hazard substances
- **Innovative**—encourages research and green chemistry

First Steps

Reframe the Chemicals Problem

- Shift from a focus on controlling hazardous chemical risks to a focus on converting the chemicals market and chemical industry to safer chemicals

Focus on the Chemicals Economy as a System

- Address the chemicals economy as a chemical production and consumption system and locate the most promising levers for change

Building Blocks for a Safer Chemicals Policy Framework

1. Set National Goals and Plans

2. Characterize and Classify All Chemicals
3. Generate and Make Accessible Chemical Information
4. Accelerate Substitution with Safer Alternatives
5. Create Safer Alternatives

6. Reconstruct Government Capacity

1. Set National Goals and Plans

Models:

US EPA: Clean Water Action Plan, Climate Change Action Plan

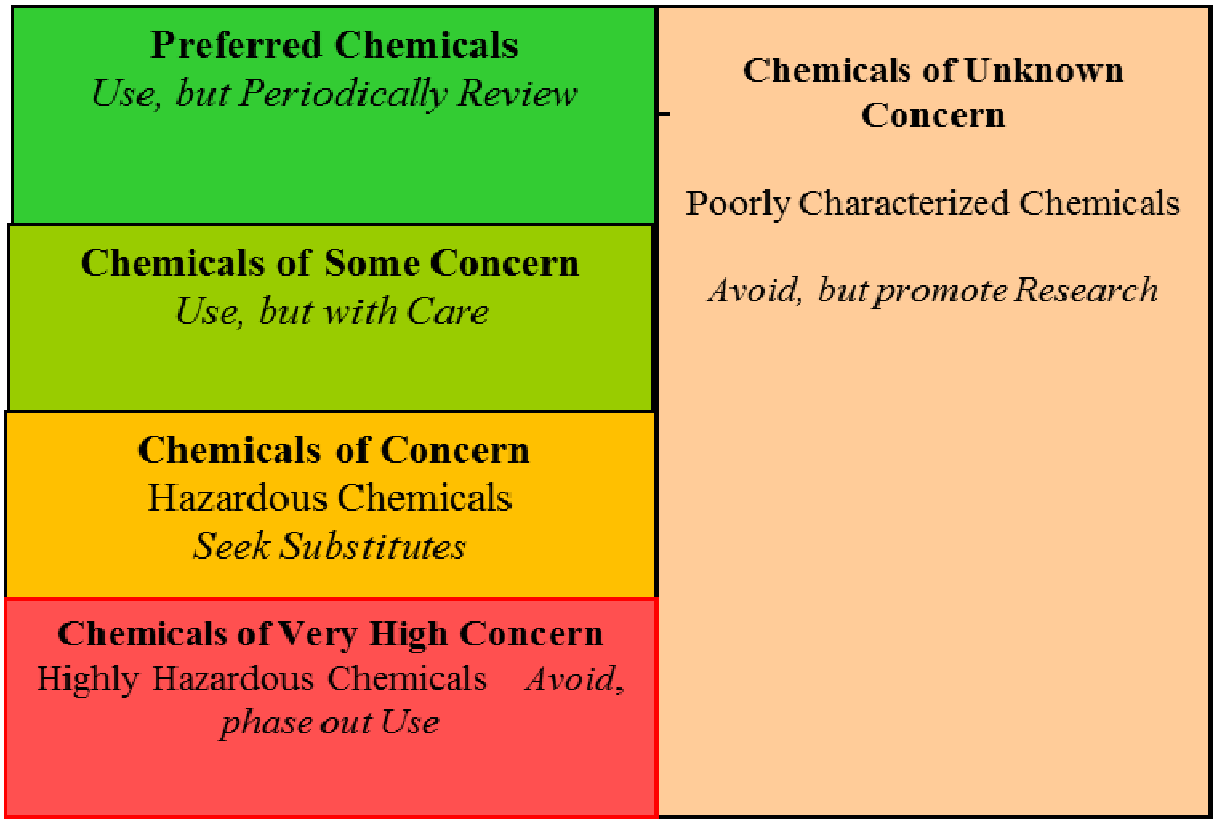
European Union "Generational Goal":

> **"By 2020…chemicals are only produced and used in ways that do not pose significant threats to human health or the environment"**

Example: National Safer Chemical Goal

By [certain date] achieve an environment free of manufactured hazardous chemicals that present a threat to human health or the environment and
phase out those substances that pose the highest risks throughout their life cycles.

2. Characterize and Classify All Chemicals



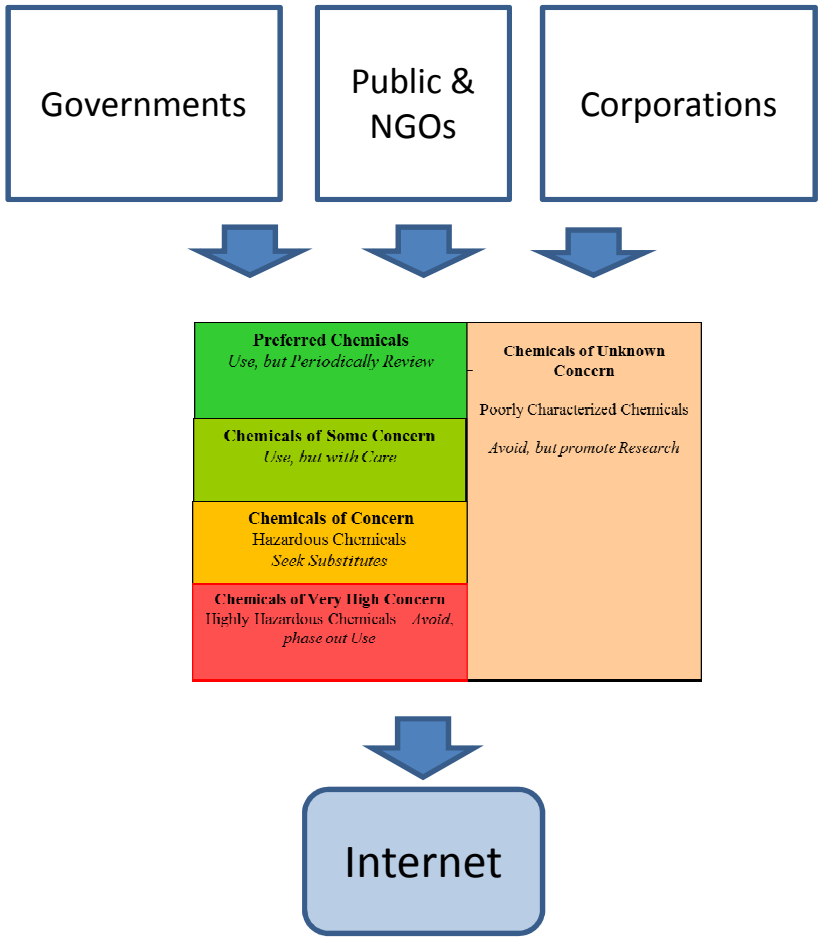
Universal Classification of Chemical Substances

Methods for Classifying Chemicals

Characterization Criteria

GHS—Globally Harmonized System for Classifaction and Labeling of Chemicals

WHO
Recommended Classification of Pesticides by Hazard

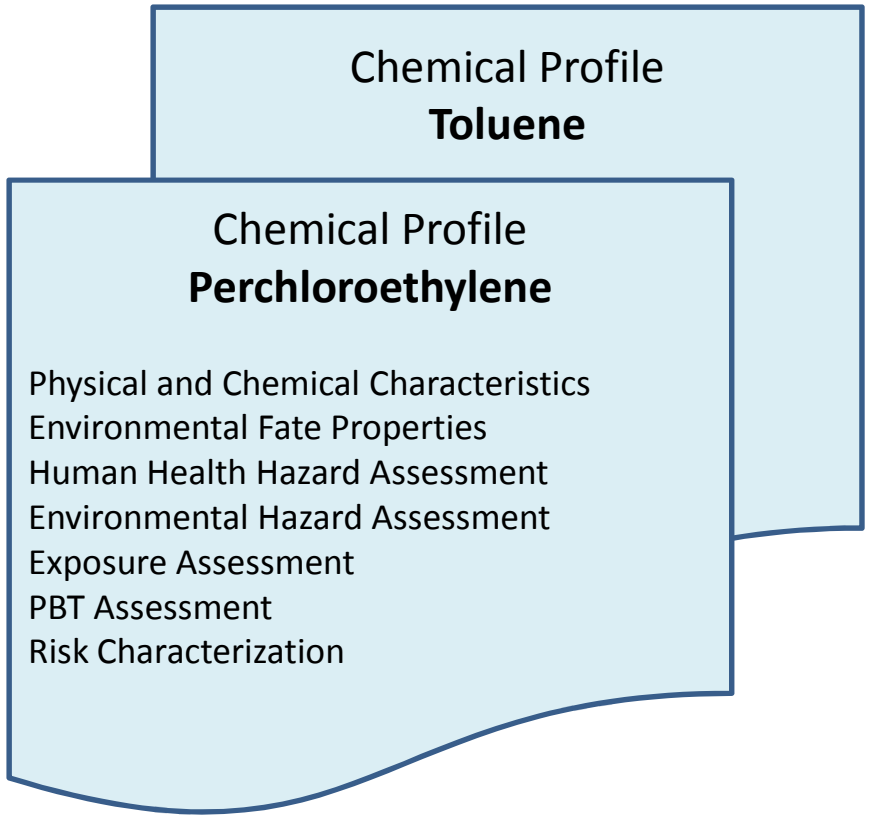


Public Review and Comment

3. Generate and Make Accessible Chemical Information

Promote Chemical Profiles on All Chemicals

Models: High Production Volume Chemical Challenge
European Union REACH Chemical Dossier



New Tools for Generating Chemical Profile Information

Hazard Assessments
Authoritative lists
SARs, QSARs
PBT Profiler
EPA's Oncologic, ECOSAR

Chemical Testing
Invivo - *Invitro* lab testing
ToxCast
High throughput computational toxicology

Release and Exposure Assessments
TRI And PRTRs
EPA's EPI Suite, ChemSTEER, E-FAST
Biomonitoring

Chemical Inventories
EPA CDR
EU EINECS
Product registries

Safer Alternative Inventories

4. Accelerate Substitution to Safer Alternatives in Economic Sectors

Promote Alternatives Assessment

Models: TURI/Lowell Center
EU-ECHA
California Safer Consumer Product Regulation
NAS Chemical Alternatives Framework

Promote Comparative Chemical Hazard Assessments

Models: Green Screen
Pharos
Swedish PRIO
German Column Model

Develop Economic Sector based Planning Strategies

Sector	Promoters	Programs
Health care	Health Care without Harm, Practice Greenhealth	CleanMed, Green Guide to Health Care
Cosmetics and personal care products	Environmental Working Group, GoodGuide, Campaign for Safe Cosmetics	Skin Deep, Safe Cosmetics Compact, Safe Cosmetics Business Network, GoodGuide
Cleaning products	EPA, GreenBlue Institute,	CleanGredients, SaferChoice
Electronics	Green Electronics Council, Institute for Printed Circuits, Lead Free Soldering Partnership, International Electronics Manufacturing Initiative	EPEAT, JIG, Environmental Product Declarations
Clothing and apparel	American Apparel and Footwear Association, Sustainable Apparel Coalition, OIA	Eco-labels, Eco-Index, Higg Index, Joint Roadmap for Zero Discharge, Environmental Product Declarations
Building construction	USGBC, Healthy Building Network, Swedish Construction Federation	LEED, BASTA, Pharos, Environmental Product Declarations, Eco-labels
Agriculture	National Sustainable Agriculture Coalition, Northeast Organic Farming Association	Organic Farming, Integrated Pest Management, Integrated Nutrient Management
Automobile	Automobile assembly companies, Ecology Center	IMDS, GADSL, Consumer Action Guides
Pharmaceuticals	ACS Green Chemistry Institute	Green Chemistry Pharmaceutical Roundtable

5. Create Safer Alternatives

Designate Regional Green Chemistry and Engineering Centers

Models:
Warner Babcock Institute for Green Chemistry
Center for Green Chemistry, University of Oregon
Institute for Green Science, Carnegie-Mellon
Center for Green Chemistry, U.. Of California Berkeley
Center for Green Chemistry and Engineering, Yale

Expand Green Chemistry Research Funding

Models:
NSF Green Chemistry Basic Research Program
Green Chemistry Research and Development Bill

Redesign Secondary and Post-Secondary Chemistry Education

Models:
Beyond Benign K-12 Education Programs
Green Chemistry Commitment

Businesses Making Safer Chemicals

Company	*Characteristics*
Segentis	Phthalate-free plasticizers
Metabolix	Chemical intermediates used in the production of resins, fibers, solvents, personal care products
SoyClean	Cleaners derived from soy and citrus, vegetable and seed oils
Air Products	Nonylphenol ethoxylates-free surfactants made from palm oil
Soy Technologies	Ready-to-use formulations for cosmetics, personal care products, paints and coatings
Allylix	Terpenes and derivatives for crop protection, biocides, flavors, fragrances and pharmaceuticals
SyntheZyme	Polyhydroxyalkanoate polymers and biosurfactants

6. Reconstruct Government Capacity

Work within Current Federal Authorities

Promulgate new regulations and standards
Set national goals and plans
Collaborate in Economic Sector Work Groups

Generate chemical information and databases
Support Green Chemistry and Engineering

Expand Federal Authorities

Reform current Chemical Control Statutes
Create a new Chemicals Agency

Develop a New Federal Chemical Agency

A non-regulatory Federal Chemicals Agency

- collect and disseminate information
- promote chemical research
- conducts risk, life cycle and alternatives assessments
- promote safer alternatives

Models: Swedish Chemicals Agency (KemI)

KEMI
Swedish Chemicals Agency

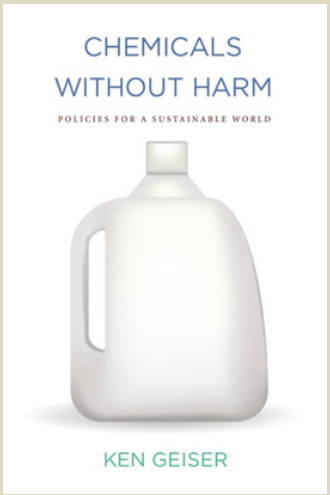
A supervisory authority that works in Sweden and in the EU to promote legislation and programs that contribute to achieving "A Non-Toxic Environment". Keeps a products register, maintains databases, approves pesticides, conducts risk assessments.

European Chemicals Agency

ECHA

The Agency's mission is to ensure consistency in chemicals management across the EU and to provide technical and scientific advice, guidance and information on chemicals.

We can solve the Chemicals Problem
We can have a vibrant, productive and safer economy



It will take a broad and inclusive movement for safer chemicals

For more information

www.materialspolicy.org