CALIFORNIA GREEN CHEMISTRY INITIATIVE

Green Chemistry Initiative Overview

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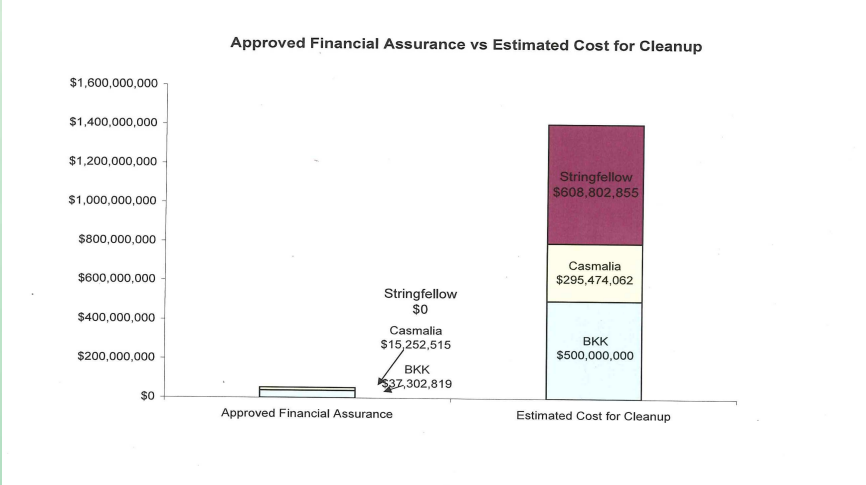
California Environmental Protection Agency

Old Approach: Cradle to Grave

- **20th Century—Single Medium (air, water, land)**
- **For the past 40 years, we have focused on end-of-pipe or after product use**
  - ***Discharges***
  - ***Emissions***
  - ***Wastes***

The Legacy

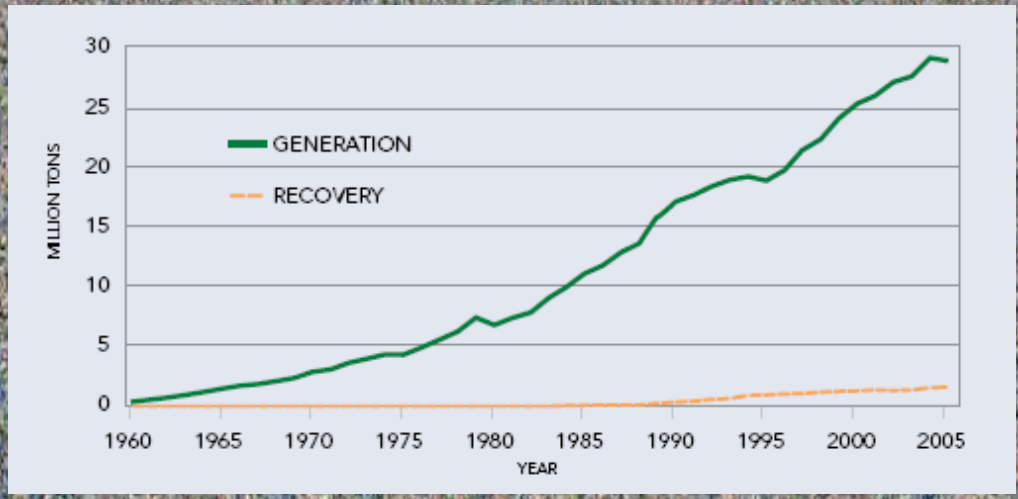
- **Yesterday's solutions are tomorrow's burdens**



- **Three legacy sites:**
  - **Estimated cleanup costs > $1.4 Billion (General Fund)**
  - **Long-term public stewardship**

The Problem:

Two million plastic beverage bottles are discarded every five seconds in the U.S.
Only 3% of plastic is recycled in U.S.



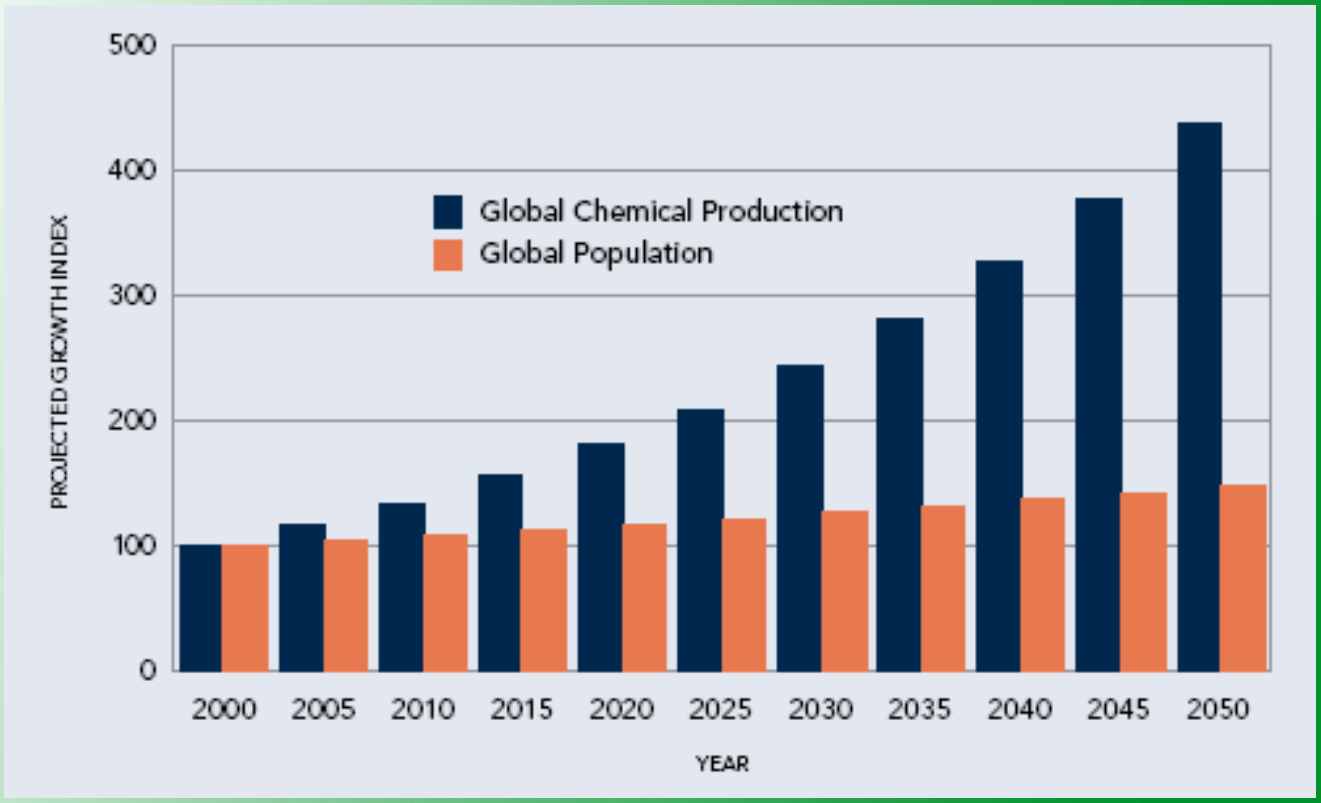
The Problem:

60,000 plastic bags are used and discarded every 5 seconds in U.S.

The Problem:

426,000 cell phones retired each day in U.S.

Global Chemical Production Doubling Every 25 Years



NEW California Laws Banning Sale of Toxic Products

- **Ban on lead in jewelry**
- **Ban on toxics in packaging**
- **Ban on mercury in certain devices**
- **RoHS ban on covered electronics**

The Problem: Toxic Waste

- *The Solution: Green Chemistry*
- **The opportunity:**

  $16 trillion global market for green materials

What is Green Chemistry?

- The consideration of public health and environmental effects of chemicals—during the design of products and processes

- A fundamentally new approach to environmental protection

New Approach: Cradle to Cradle

- **21st Century—Multi-media, life-cycle**
- **Through design and innovation, we can reduce the use of harmful chemicals, generate less waste, and use less energy**

The Draft Goal

California is a leader in innovation, use, and manufacture of safer, ever more environmentally benign chemicals and products.

PHASE 1: Listening
April through December 2007

- ✓ **Conversation with California**
  - **57,000 blog hits**
  - **411+ pages of ideas**

Green Chemistry Information Exchange

- ✓ **Symposia and Meetings**
  - **Green Chemistry I, II, and III**
  - **Nanotechnology I and II**
  - **Biomonitoring**
  - **OEHHA - Green Chemistry**
  - **Stakeholder**

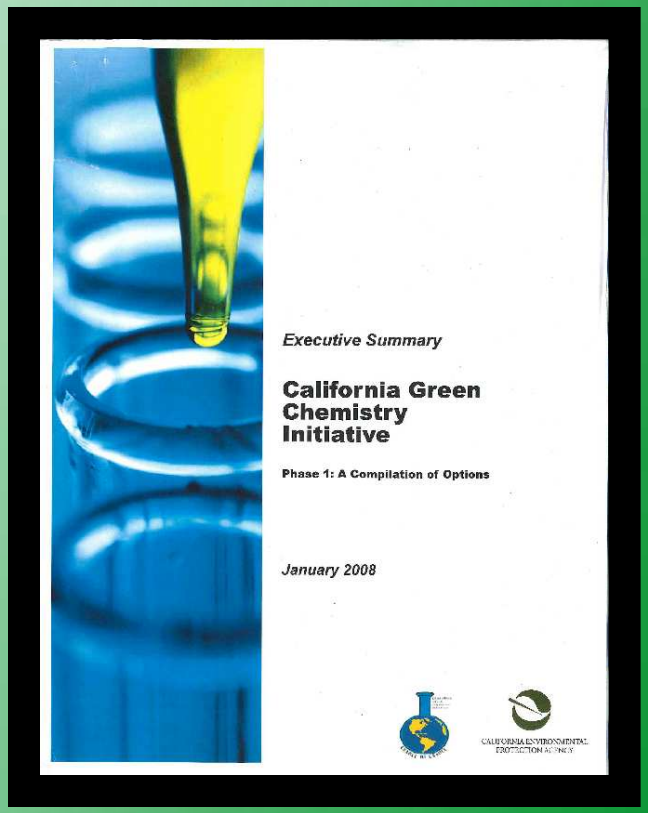
- ✓ **Phase 1 Options Report**
  - **818 options**
  - **8 chapters**

- ✓ **Key Elements**
  - **Align existing state programs**

Phase One Report

Please browse:

www.dtsc.ca.gov/PollutionPrevention/GreenChemistryInitiative



PHASE 2: Analysis
January through June 2008

- **Objective: evaluate policy alternatives and recommend a framework for California**
- **Process**
  - **Public**
  - **Transparent**
  - **Inclusive**
  - **Effective**

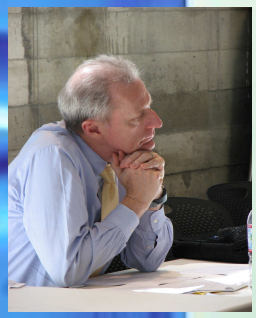
- **Participants**
  - **Government**
  - **Environmental groups**
  - **Industry, Business, and Labor groups**
  - **Public**
  - **Academia**
  - **Community Groups**

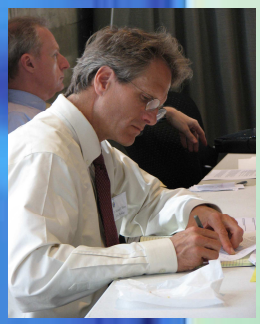
- **Deliverable: *"Recommendations Report" to the Secretary and Governor—by Summer of 2008***

PHASE 2:
Three Concurrent Tracks

- Science Advisory Panel
- Key Element Teams
- Draft Straw Conceptual Framework

Science Advisory Panel





- ***38 recommendations***
- ***Balanced approach***
- ***Demand and supply-side***
- ***Address data, safety, and technology gaps***

Science Advisory Panel Options

Supply side

- Instilling green chemistry into education
- Supporting research and innovation in green chemistry and engineering
- Building green chemistry capacity through development of tools, methodologies and strategies for developing greener chemicals
- Providing incentives to industry and recognition

Demand side

- Identifying and prioritizing chemicals or chemical uses of concern
- Developing, improving and effectively employing regulations
- Developing incentives to boost demand for green chemistry

Key Elements

Key Elements align with and build on existing State programs.

- Include Green Chemistry principles in an Environmental Education Initiative
- Train a new generation of scientists and engineers
- Strengthening consumer protection laws
- Expand California's pollution prevention program
- Disseminate information on toxic chemicals and empower consumers to make informed choices.
- Account for chemical toxicity and impacts in state procurement decisions

Comprehensive State Policy Framework Recommendations

Coming Soon!