

Safer Chemistry and Materials are Urgently Needed

Molly Jacobs

Sustainable Chemistry Catalyst

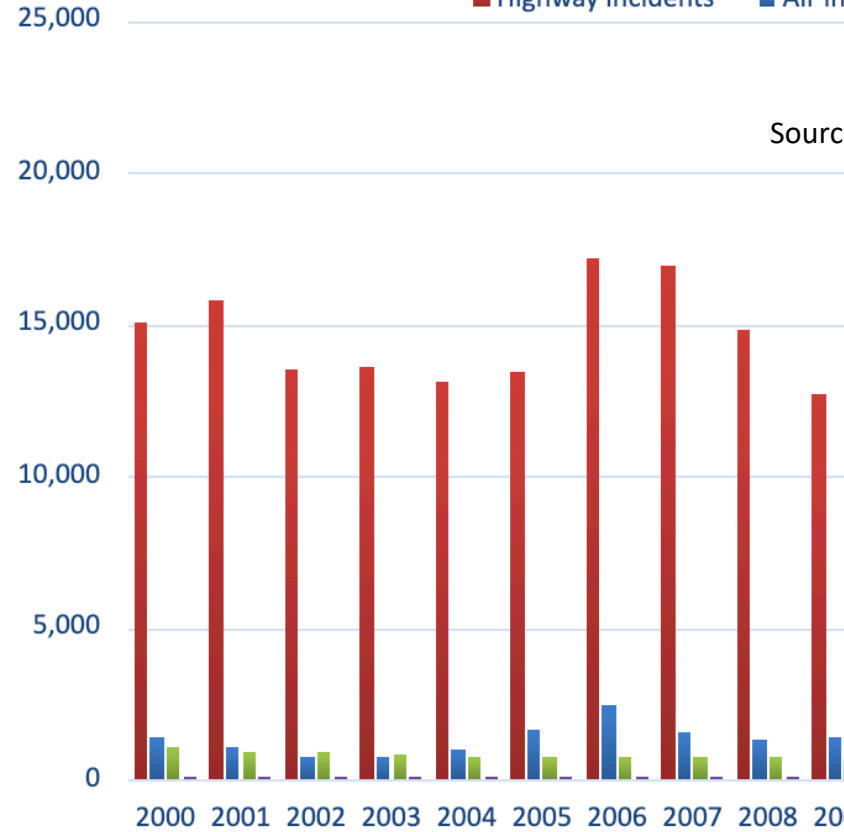
Lowell Center for Sustainable Production, University of Massachusetts Lowell

CHE Webinar - March 22, 2023



Hazardous Materials Incidents

■ Highway incidents
 ■ Air incidents
 ■ Rail incidents
 ■ Water incidents



There is a chemical fire, explosion or toxic release every two days in the U.S.

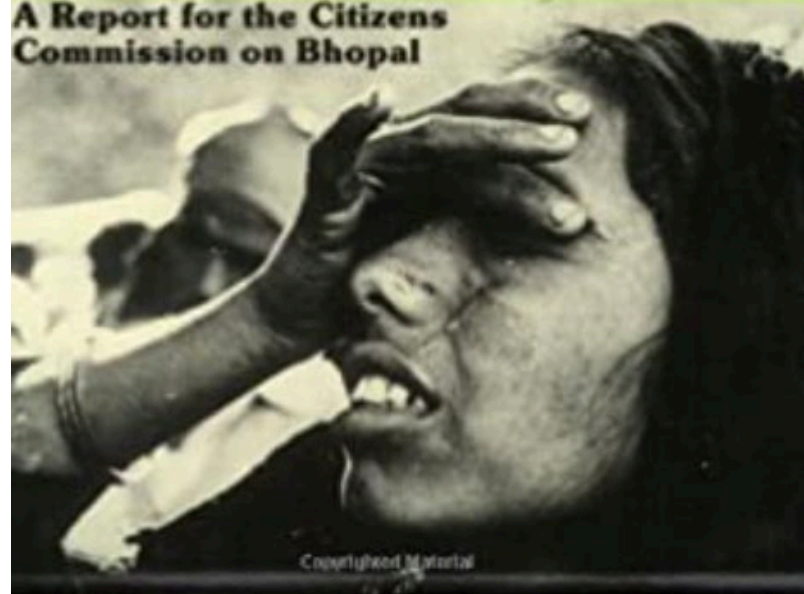
-Source: Coalition to Prevent Chemical Disasters

THE BHOPAL TRAGEDY

What Really Happened and
What It Means for
American Workers and
Communities at Risk

by
Ward Morehouse and M. Arun
Subramaniam

A Report for the Citizens
Commission on Bhopal



Green Chemistry Pocket Guide

The 12 Principles of Green Chemistry

Provides a framework for learning about green chemistry and designing or improving materials, products, processes and systems.

1. Prevent waste
2. Atom Economy
3. Less Hazardous Synthesis
4. Design Benign Chemicals
5. Benign Solvents & Auxiliaries
6. Design for Energy Efficiency
7. Use of Renewable Feedstocks
8. Reduce Derivatives
9. Catalysis (vs. Stoichiometric)
10. Design for Degradation
11. Real-Time Analysis for Pollution Prevention
12. Inherently Benign Chemistry for Accident Prevention

www.acs.org/greenchemistry



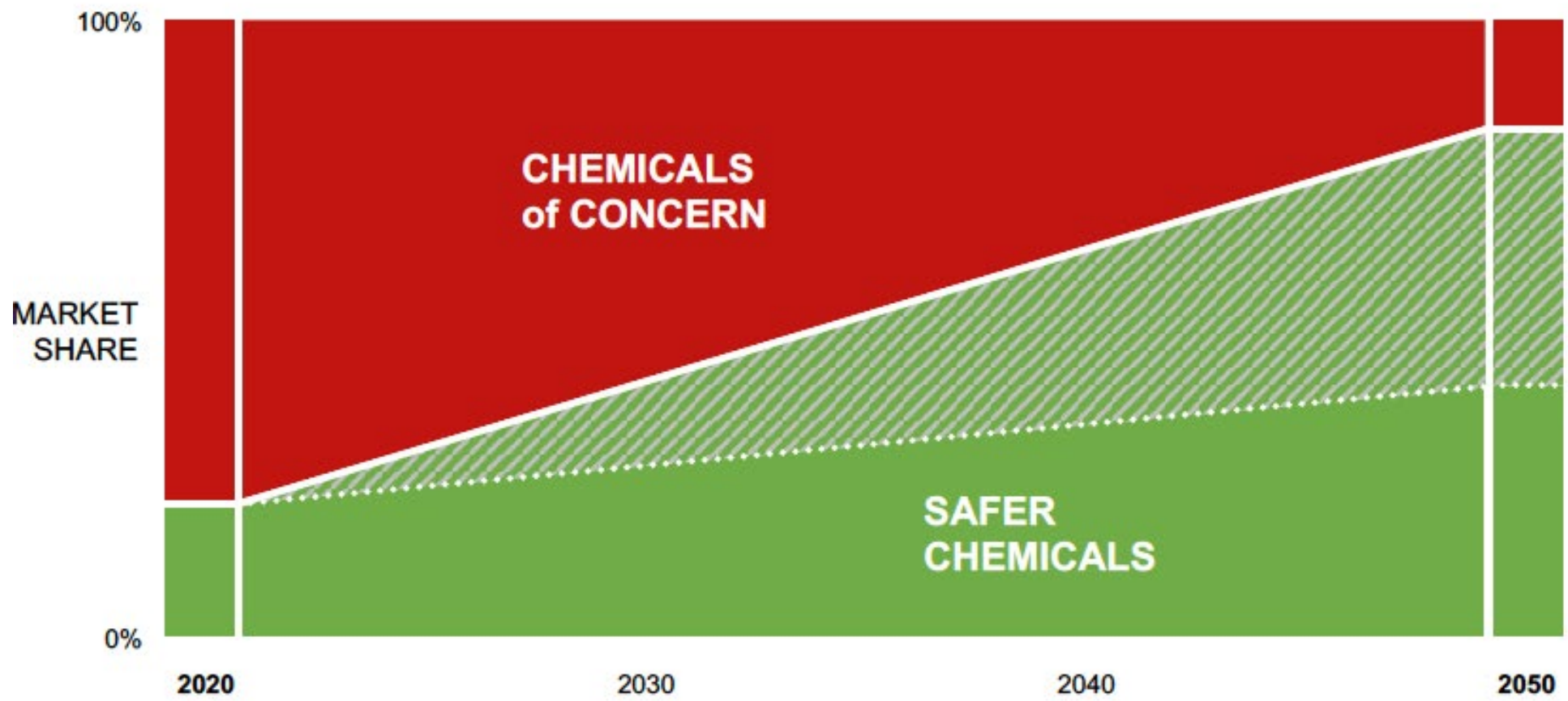
Pollution Prevention Act of 1990

Established the national policy that pollution should be prevented or reduced at the source whenever feasible.

States that recycling, energy recovery, treatment, and disposal are **NOT** included within the definition of pollution prevention.



EU Chemical Strategy for Sustainability
Toxic-Free Hierarchy



SHARED GOAL
A rapid transition to safer chemicals.



CURRENT TREND
A slow transition to safer chemicals.

Sustainable Chemistry R&D Act

CONGRESS.GOV Advanced Searches Browse

Legislation Examples: hr5, sres9, "health care" MORE OPTIONS

Home > Legislation > 116th Congress > S.999

S.999 - Sustainable Chemistry Research and Development Act of 2019

116th Congress (2019-2020)

BILL Hide Overview

Sponsor: [Sen. Coons, Christopher A. \[D-DE\]](#) (Introduced 04/03/2019)

Committees: Senate - Commerce, Science, and Transportation

Committee Meetings: [11/13/19 10:00AM](#)

Committee Reports: [S. Rept. 116-251](#)

Latest Action: Senate - 08/12/2020 Placed on Senate Legislative Calendar under General Orders. Calendar No. 513. ([All Actions](#))

Tracker: Introduced

Inflation Reduction Act

CONGRESS.GOV Advanced Searches Browse

Legislation Examples: hr5, sres9, "health care" MORE OPTIONS

Home > Legislation > 117th Congress > H.R.5376

H.R.5376 - Inflation Reduction Act of 2022

117th Congress (2021-2022)

LAW Hide Overview

Sponsor: [Rep. Yarmuth, John A. \[D-KY-3\]](#) (Introduced 09/27/2021)

Committees: House - Budget

Committee Meetings: [08/04/22 10:00AM](#) [04/27/22 2:30PM](#)

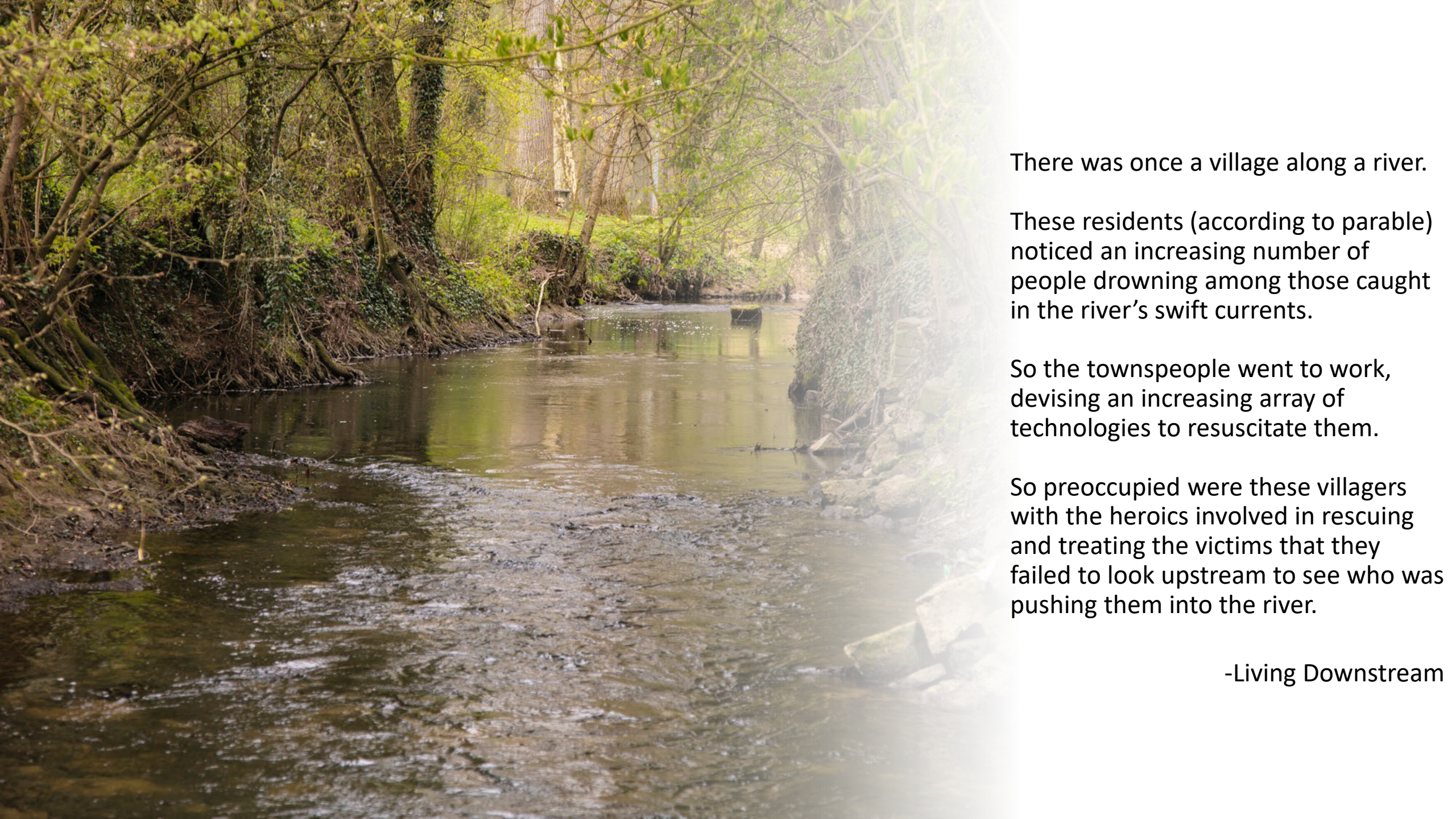
Committee Reports: [H. Rept. 117-130, Book 1](#); [H. Rept. 117-130, Book 3](#); [H. Rept. 117-130, Book 2](#)

Committee Prints: [H. Prt. 117-17](#), [H. Prt. 117-18](#), [H. Prt. 117-19](#)

Latest Action: 08/16/2022 Became [Public Law No: 117-169](#). ([All Actions](#))

Roll Call Votes: There have been [43 roll call votes](#)

Tracker: Introduced > Passed House > Passed Senate > Resolving Differences > To President > Became Law



There was once a village along a river.

These residents (according to parable) noticed an increasing number of people drowning among those caught in the river's swift currents.

So the townspeople went to work, devising an increasing array of technologies to resuscitate them.

So preoccupied were these villagers with the heroics involved in rescuing and treating the victims that they failed to look upstream to see who was pushing them into the river.

-Living Downstream