



A BI-MONTHLY NEWSLETTER OF THE SEBASTOPOL TOXICS EDUCATION PROGRAM

## Calculating the Full Cost of Toxic Pesticides

Sometimes our actions can unintentionally harm others, even across the globe. By understanding our impacts, and making better choices, we can reclaim our power to make a better world for everyone — including ourselves, and future generations.

Take toxic pesticides, for example, which harm people and ecosystems throughout their entire lifecycle, costing us much more than their price at the store.

Yet we are not powerless to this outcome. In our consumer and citizen actions, we determine whether these toxics are used or not. Every time we reduce our use of toxics, and buy products that avoid using toxics (such as organic products), we help reduce the harm in the world — and help create a non-toxic future for all.

### Five Phases of Costs

Pesticides harm people and ecosystems at five key phases in their lifecycle.

- 1) Production;
- 2) Transportation;
- 3) Application;
- 4) Storage & Disposal; and
- 5) Extraordinary Events.

Once toxics are released, they can travel up to hundreds of miles in air and water, impacting all that they touch. Here are some examples of what these costs really mean.



### 1) Production

*Costs: Harm to the health of factory workers, community members, and ecosystems from regular exposure, leaks, and accidental discharges.*

In 1984, residents of **Bhopal, India**, awoke suddenly with eyes burning and coughing “with each breath seeming as if I was breathing in fire.” A Union Carbide pesticide factory had accidentally released 46 tons of methyl isocyanate, exposing half a million people to this toxic gas. Survivors remember people writhing in pain, gasping for breath, “reduced to near blindness,” running into the streets, and dying “in the most hideous ways” — by vomiting, convulsions, choking, and being trampled by the terrified crowds.

An estimated 6,500 people were killed in the first week, with hundreds of thousands injured. To date, 20,000 have died. Survivors have been plagued with an epidemic of cancers and what one doctor described as “monstrous births.” The factory site hasn’t been properly cleaned up and continues to poison residents, including through their only water supply. More than 120,000 people are still ill from ailments caused by the accident and the subsequent pollution. The incidence of cancer and tuberculosis in Bhopal is more than double their national average.<sup>1</sup>

This is just one example of the suffering that pesticide factories bring to those who live near them — and not just in foreign countries. For example, east of San Francisco is **Contra Costa County**, with one of the U.S.’s biggest concentrations of

*See Full Cost, over ...*

## Teaching Your Children to Work Cooperatively with Nature

Are you interested in ways to teach your children or students how to work cooperatively and non-toxically with nature?

Here are some resources that can help you encourage children’s innate curiosity about the natural world while giving them useful and healthy insights that last a lifetime. These tools include information about alternative, less-toxic approaches to pests, including Integrated Pest Management, or IPM.

### Join Our Pest Patrol: A Backyard Activity Book for Kids

This activity book (with a companion teachers’ guide) offers many educational activities for 3rd and 4th graders. Sections include: natural pest enemies, ecology, compost, caterpillars, ticks, mosquitoes, and weeds. 24 pages. Download free at [www.mda.state.mn.us/IPM/IPM\\_Pubs.html](http://www.mda.state.mn.us/IPM/IPM_Pubs.html). *Minnesota Department of Agriculture, (651) 201-6217; <jeanne.ciborowski@state.mn.us>*

### Who Wants to be an IPM Super Sleuth?

This interactive website educates children about integrated pest management (IPM) solutions for pests in and around the home. The site includes quizzes, crossword puzzles, word searches, matching, and other fun games for elementary grade students, plus an extensive list of IPM educational resources. 114 pages. Download free print version. [www.ipminstitute.org/supersleuth.htm](http://www.ipminstitute.org/supersleuth.htm) *IPM Institute of North America, (608) 232-1528*

### Exploring Urban Integrated Management: Activities and Resources for Teaching K-6

Curriculum guide for teaching IPM in the school and community. Includes teacher fact sheets, lesson plans, and student worksheets on topics including IPM steps and decision-making, insect and rodent pests, inspections, and control method choices. 76 pages. Down-

*See Children, over ...*

## Support Healthy Day Care

In 2000, an alliance of health care and community groups worked to pass the **California Healthy Schools Act**. This law gives parents the right to know what pesticides are being used in their children's schools, and encourages schools to reduce their use of toxic pesticides. (More information is at <[www.environmentcalifornia.org/results/environmental-health/healthy-schools](http://www.environmentcalifornia.org/results/environmental-health/healthy-schools)>.)

Groups are now working to pass the **Healthy Day Care bill** (AB 2865, Torrico). This would extend the Healthy Schools Act to include day care facilities. Like that Act, it **would require parental notification of pesticide applications**, and offer day care providers information on least-toxic pest management techniques (IPM), to help them create a safer environment for the children in their care.

Non-parental child care is received by 65% of California's children (ages 0 to 5), most in structured care settings. Unfortunately, an EPA study found organophosphate and organochlorine pesticides in nearly 100% of the indoor air samples at day care sites, at higher levels than homes.

**Children are especially vulnerable** to pesticides, because of their immature and developing body systems, and hand-to-mouth behavior. Studies have shown that exposure to pesticides during critical development stages can have permanent and irreversible effects, causing persistent asthma, childhood leukemia, reproductive problems, neurological disorders, cancer, hyperactivity, learning disabilities, and altered social skills. Acute symptoms can include headaches, nausea, breathing problems, asthma attacks, and dizziness.

■ **How you can help:** E-mail your legislator and ask him/her to support the Healthy Day Care bill.

■ **For more information and action ideas:** See <[www.environmentcalifornia.org/environmental-health/healthy-day-cares](http://www.environmentcalifornia.org/environmental-health/healthy-day-cares)>. More ideas for protecting children from toxics is in past TNS issues; see <[www.healthyworld.org/STEP/Index.html](http://www.healthyworld.org/STEP/Index.html)>

## Full Cost, continued

oil refineries and chemical plants. These facilities handle millions of pounds of hazardous products and waste and potentially put 11 cities and half a million people at risk. Contra Costa is one of the nation's worst counties in frequency of chemical accidents that involve injury, evacuations, or death. Residents have complained for years of health problems related to their exposures.

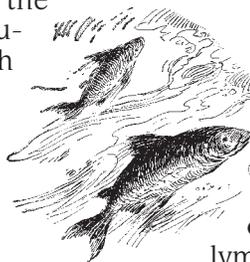
**Workers in pesticide factories** also suffer increased rates of illness. For example, a study by the National Institutes of Occupational Safety and Health (NIOSH) revealed a 46% higher cancer rate among workers in factories manufacturing the weed killers 2,4-D and 2,4,5-T.<sup>2</sup>

### 2) Transportation

*Costs: Harm to the health of people and ecosystems anywhere along the route, from accidents, spills, and other unintentional releases.*

High quantities of toxics are transported around this country every day, putting at risk all the people and ecosystems that they pass.

For example, many of us heard about **the train that derailed and spilled a toxic chemical into the Sacramento River** in 1991, killing nearly everything in the waterway for forty miles and decimating that ecosystem (and local economy) for years. Over 200,000 fish died, and it



cost the area millions of dollars in damages and lost tourist business.

Fewer people know that what spilled was 20,000 gallons of the **pesticide metam sodium**, used to kill pests and weeds on a variety of crops. In 2004, over 14 million pounds of metam sodium were used in California.<sup>3</sup> This spill is just one of the many hidden costs of its use.

### 3) Application

*Costs: Harm to the health of the applicator, ecosystems, and any people or animals on or near the site, both during and after application.*

Studies have shown that **people who use toxic pesticides** — including backyard gardeners, farmers, farmworkers, and professional applicators — **have increased rates of disease**, including non-Hodgkin's lymphoma, immune system and neurological disease, infertility, and birth defects. Children and pets, as well as neighbors, also have increased disease rates, and local ecosystems and wildlife are harmed.

**We can all be exposed to these pesticides** — and thus harmed — almost anywhere, including at parks, businesses, schools, homes, roadsides, and much more. We're even exposed to chemicals used in other countries (including chemicals banned here) when they come back to us in our food, air, and water.

**. . . Stay tuned for Part II of this article, in the next issue! . . .**

~ Patricia Dines

Footnotes are on the City website's STEP page.

## ABOUT STEP

The Next STEP (TNS) is published six times a year by the **Sebastopol Toxics Education Program (STEP)**. **STEP is a project of the City of Sebastopol**, implemented by local citizen volunteers. **STEP's mission** is to support city residents in reducing their toxic use and exposure, creating a healthier and safer Sebastopol for everyone.

**Newsletter Editor and Layout:** Patricia Dines, Email <[PDines@compuserve.com](mailto:PDines@compuserve.com)>

**Newsletter Editorial Team:** Patricia Dines and Jim Gleaves

**Newsletter Design Concept and Logo Design:** Lyn Dillin (née Bouguereau)

**STEP Founders:** Michael Black, Patricia Dines, Rebecca Dwan, Jeff Edelheit, Nan Fuchs, Craig Litwin, and Larry Robinson.

STEP, P. O. Box 1776, Sebastopol CA 95473  
<[www.ci.sebastopol.ca.us](http://www.ci.sebastopol.ca.us)>

Printed on recycled paper.

## Children, continued

load free at <[www.pested.msu.edu/CommunitySchoolIpm/curriculum.htm](http://www.pested.msu.edu/CommunitySchoolIpm/curriculum.htm)>. *Michigan State University Pesticide Education Program*, <[jenkinse@msue.msu.edu](mailto:jenkinse@msue.msu.edu)>

*SOURCE: Pesticide Action Network Updates Service (PANUPS), Resource Pointer #288. See PAN's website at <[www.panna.org](http://www.panna.org)> to get more information about pesticides and alternatives; join their weekly email list; or become a member and support their work. You can also contact them at <[panna@panna.org](mailto:panna@panna.org)>, (415) 981-1771.*