

## Pollution from factories

# 33



Factories make useful products, but they also make waste. Unfortunately, factory owners do not always dispose of waste safely. Factories often put dangerous chemicals and other dangerous materials into the air, water, and ground. Pollution from factory waste causes serious health problems for everyone in the community, and when it travels in air and water, can even cause illness for people who live hundreds of miles away. (See *Pollution from garment factories* on page 106, and *Pollution from shoe factories* on page 119.)

Factories must provide workers and people in the communities around the factory with:

- information on the chemicals and materials used in the plant, and how they are disposed of.
- results of regular government or independent testing of waste disposal through smokestacks, ventilation systems, pipes, burial pits, and other methods.
- proof that machinery and installations in the factory are safe, in good condition, and that evacuation plans and resources for the area are ready in case of natural disaster or serious accident.

Factory products can be dangerous to our health when they are poorly designed or cannot be recycled or disposed of safely. Workers need to work with environmental and consumer organizations to protect both jobs and health.

## Health problems caused by pollution

Illnesses caused by pollution are not the same for each person or each community. Children often have more health problems than adults, because their bodies are small and still developing. Some problems affect women more than men. Inside or outside the factory, at work or at home, health problems caused by chemicals depend on the type of chemical, the way people are exposed to it, and how often or for how long. To learn more, see chapter 8: Chemical dangers and Appendix B: Common chemicals and materials.

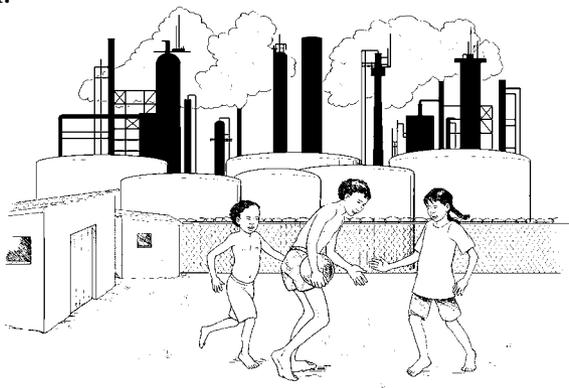
Harm caused by pollution can also depend on the environment around the factory, such as the direction of winds, the kind of soil, the number of trees, the location of water sources, or the depth of groundwater. Some pollution can travel through water and air, and can also harm fish, birds, animals, plants, and people in communities far away from the factory.

### Air pollution

Factories contaminate the air by blowing chemical vapors and smoke out through vents and smokestacks, and by burning waste in open dumps or incinerators. Exhaust from generators, diesel trucks, and buses also fill the air with dangerous gases.

Air pollution can cause skin, heart, and breathing problems, and eye irritations and infections. Dangerous chemical gases in the air can also cause cancer and other serious illnesses, problems with fertility and pregnancy, miscarriages, and harm to babies before they are born. Some chemicals harm children's ability to think and learn.

Air pollution that harms people can also harm other living things. For example, soot from the smoke of motor exhaust can cover the leaves of a plant and change the way the plant grows, or cause the plant to produce less fruit, or even die.



## Close the dump!

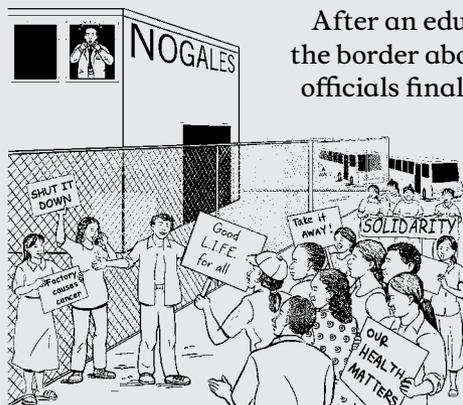
When new factories were built near Nogales, a Mexican city on the USA border, people on both sides of the border welcomed the jobs they brought. The factories had no smokestacks, so nobody worried about pollution. But after a while, many people started getting sick with cancer and other serious illnesses. A group of sick people got together to support each other and named their group LIFE — Living Is For Everyone. They decided to find out why so many people were sick.

LIFE members surveyed their neighborhoods and made a map showing where sick people lived. They found that people living near certain wells were sick much more than people in other parts of the community. They were also concerned about a dump where factories burned waste.



LIFE took pictures of the dump and contacted the media.

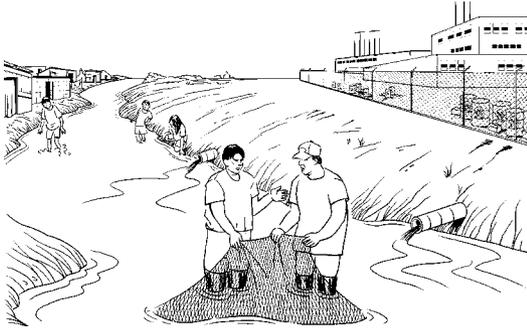
They wanted the dump closed, and they wanted help proving that factory pollution was making them sick. But others in the community were worried that all this attention was going to scare the factory owners into leaving Nogales. They held many meetings where everybody got to discuss their fears and frustrations. After many weeks, the community decided to back LIFE. LIFE's campaign convinced the government to study the water, ground, and air in Nogales. The studies found high levels of chemicals that cause cancer.



After an educational campaign on both sides of the border about pollution and health, Mexican officials finally closed the dump that burned factory waste. Although Nogales still has more than its share of sickness, people are now better organized to stop other sources of pollution and are more aware about the links between health and environment.

## Water pollution

Factories often dump dirty water, used chemicals and oils, sewage, and cafeteria waste directly into the ground or into a community water source, such as a river, lake, or stream. Waste dumped into the ground can poison the groundwater that feeds other water sources, such as wells and ponds. Electronics companies sometimes store very dangerous chemicals in underground tanks. In many countries, including the United States, these containers have leaked, contaminating the soil and groundwater with toxic chemicals.



Using polluted water for drinking, cooking, washing, and bathing can cause many health problems, including stomach infections and diarrhea, skin infections and rashes, eye infections, reproductive problems, cancer, and other serious illnesses.

Water pollution can harm fish and other plants and animals that live in or near the water. Eating fish and plants from contaminated water can also cause health problems. Polluted groundwater or irrigation water can ruin soil for growing crops and it can poison food grown in the soil.

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## Pollution from solid waste

Factories also produce solid waste, such as spoiled parts, metal filings, scraps, empty chemical containers, used cardboard boxes, wood pallets, plastic, wire, paper, and other trash. Some companies transport waste to a local dump or landfill where it may be buried or burned. Factories may recycle some types of waste, such as paper and cardboard, but too often waste is just dumped in piles outside the factory and in the community.

- Rats, flies, mosquitoes, and other insects that spread diseases concentrate and breed in waste piles, dumps and ponds.
- Children playing near waste piles and people collecting waste to use or sell can easily get diarrhea, scabies and other skin infections, eye infections, tetanus, and other health problems.
- Waterways and drainage canals can clog with dumped waste, causing flooding or creating stagnant, unhealthy pools.
- Burning waste fills the air with smoke, fumes, and dangerous chemicals. Poisonous ash drops onto plants, soil, and water. Burning plastic and batteries are especially harmful.

## Tragedy in Bhopal

On the night of December 2, 1984, 40 tons of deadly chemical vapors spread through Bhopal, India, a city of about 1 million people. The chemical came from a leak inside a pesticide factory owned by Union Carbide, a large corporation from the United States. The factory had an alarm system to warn if there was a leak, but the owners of the factory had disconnected it. Within an hour, the deadly gas covered the entire city. Many people died in their sleep that night, and over 8,000 people died in the days that followed.



The harm from that night 30 years ago still continues. More than 20,000 people have died and more than 150,000 people live with serious health problems that include lung damage, loss of vision, and cancers. The poisoning affects children born to survivors of the disaster. Many children in Bhopal have been born with misshapen bodies and are unable to grow, learn, and talk like healthy children. Even people who moved to Bhopal afterwards are affected because they drink poisoned water and eat food grown in the area.

Union Carbide and the company that now owns it, Dow Chemical, have refused to take responsibility for the disaster. But the people of Bhopal have organized to demand justice and win compensation for survivors and their families. They are fighting for the Indian government to supply their communities with clean water, and to clean up and remove poisonous materials and contaminated soil from the factory site.

The Bhopal disaster shows what can happen when we trust a company to keep us safe from the extremely dangerous chemicals used in their factories. Because companies routinely ignore basic safety precautions to increase profits, they and their hired experts cannot be allowed to evaluate the benefits and risks by themselves. Disasters will be prevented only when workers and neighbors have the information they need and the power to participate in decisions about their community's safety.

## Leaks, spills, and fires

A large chemical leak or spill can suddenly harm the whole community, as did the disaster in Bhopal. The leak or spill can come from machinery inside the factory, from a break or explosion in containers and pipes that hold dangerous liquids or gases, or from trucks or trains carrying chemicals or waste.

Chemical explosions or fires can spread poisonous smoke through the air. The water used to fight a fire can carry chemicals into lakes or streams, or into the ground where it can contaminate wells and other water sources.

## Electronics recycling

Electronics contain hundreds of dangerous substances that can harm workers' health when they are being produced. When these products are no longer useful and are thrown away or recycled, they often end up poisoning even more people.

Workers, and sometimes entire families, disassemble electronics waste. People smash, burn, and often work with their bare hands to separate the pieces. This releases dangerous and toxic chemicals into the air, soil and water. The workers, their families, and their communities are directly exposed to cadmium, lead, and hundreds of other chemicals known to cause serious health problems, cancers, and death.



## Organizing against factory pollution

Gathering information about pollution from factories can be as simple as asking some questions and taking a walk around the area, or it may be more complex, involving formal interviews and scientific studies. In either case, if you organize well you may be able to find the sources of pollution and change things for the better.

## Activity

## Community pollution survey

This activity has 2 parts. Your group may need to meet a few times to plan and to evaluate each part. It may take several weeks to complete.

### 1. Talk to people in the community

Ask your neighbors and older residents of the community to think back to a time before the factory opened. What has changed since then?

Ask your neighbors what signs of factory pollution they have seen or smelled. Ask them about illnesses they or their family members may be suffering, especially miscarriages and birth defects, as many toxics cause reproductive problems. Write down the information about illnesses, dates, and the location of their homes in relation to the factory. You can also use this information to make a map.

For ideas about making and using surveys, see chapter 3.

Ask workers and former workers what kind of waste the factory produces and where it goes. Try to find out what chemicals are used in the factory, how they are used, and how those chemicals get into the air, water, food, and homes outside the factory. Find out where the wastewater from the factory goes. Companies often dump many of the chemicals they use into local sewers, rivers, lakes, and so forth. This information will help you plan the next part of the activity.



### 2. Take a walk

As a group, or in several small groups, you can walk around the community using your eyes, nose, and ears to detect strange colors, smells, and sounds that may be signs of pollution. Follow up on the information people in the factory and community told you. Write down what you learn and take photographs of what you see. This will help you share the information later and will help the group decide what action to take.

Ask questions about what you do not see. For example, if there are no trucks leaving the factory with chemical waste, it is either going into the air, being dumped into the ground, or piped into a sewer or stream. Are smells, illnesses, or other signs of pollution greater downwind or downstream from the factory?

*(continued)*

**Activity****Community pollution survey** *(continued)*

Decide as a group where to walk and what to look for. Here are some suggestions of things to observe:

- **Look for signs of air pollution**

Is there smoke, dust, or smog in the air around the factory? Do trucks often park on streets with their motors running?

Walk downwind from the factory and look for dust in the air or signs of chemicals on the ground, building, or plants.

Use your sense of smell to detect strange odors. Sniff around for a chemical smell or a burning smell. You may have to walk the area more than once and at different times, because burning may happen only at certain times of the day or week. Ask the neighbors.

- **Look for signs of water pollution**

Visit nearby creeks, canals, and ponds, and notice the color and the smell of the water. Look for signs of oily, foamy, or sticky residues in the water or on the plants, rocks, or sand next to the water. Observe the plants, fish, animals, and insects living in and around the water. Do they seem healthy?

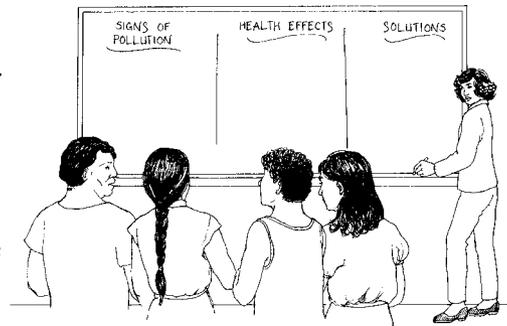
- **Look for signs of other waste**

Can you see liquid waste flowing out of the factory, or a trench where barrels of chemicals are emptied onto the ground? Are there piles of empty containers or other trash? Are there people recycling used products?

### 3. Discuss what you learn

The most important step is sharing all the information with the group or entire community. You may want to make a map of the area around the factory and mark where you observed signs of pollution.

On a wall or a chalkboard, make a list of all the kinds of pollution coming from the factory, possible health effects of each type of pollution, and possible solutions. Using these lists, ask questions that will help the group decide what action to take. For example, which kind of pollution is causing the most problems? Which kind of pollution may be the easiest to stop or to clean up? See more about how to make a community map on page 44.



### Taking action to clean it up

The Metales y Derivados battery recycling plant in the Chilpancingo neighborhood of Tijuana, Mexico, did not take care with its toxic waste. The factory stored it in badly-made containers that leaked chemicals into the soil and water. The wind blew waste into the community. People complained about skin rashes, stomach problems, and asthma.

Pressure from the community and environmentalists finally pushed the Mexican government to close the plant. But instead of cleaning up the extremely dangerous chemicals, the factory owner fled across the border to San Diego, USA. He knew the Mexican government could not touch him there. The plant was abandoned with 23,000 tons of waste, including 7,000 tons of a very toxic lead mixture.

The people of Chilpancingo, with help from the Environmental Health Coalition (EHC) activists from the USA and Mexico, campaigned to clean up this toxic waste site left by Metales y Derivados. After more than a decade, the Mexican government finally signed a cleanup agreement and formed a bi-national community and government working group. The cleanup was completed in 2008 and included independent community monitoring. Key to their success was:

- **getting organized and connecting** with environmental, labor, and human rights groups. They held rallies, sent letters to government officials, and kept media attention focused on their problem.
- **testing, monitoring, and publicizing the pollution.** Local laboratories tested the water and soil, and university students in the border region gave technical support.
- **organizing educational campaigns** about pollution and health. They developed a grassroots training program for women on how to identify and eliminate toxics in the household, how industrial contamination affects the community, and how to create action plans for change.
- **using local, national, and international laws and regulations.** When the Mexican government said it was not responsible and would not pay for the clean-up, the people appealed. After 3 years, the bi-national environmental agency determined that the Chilpancingo site was a “grave risk to human health.” They also got the UN Special Rapporteur on the Right to Adequate Housing to tour the area, and the UN High Commission for Human Rights to speak on their behalf.

All these actions increased pressure on the Mexican government to finally clean up Chilpancingo.