

Pollution Prevention: The Basics

July 2001
Number 73

Pollution prevention, or "P2", is a way of looking at what causes waste and pollution and then figuring out the best way to reduce the pollution before it is created. Historically, people looked for ways to control pollution after it was created. Treating wastewater, filtering air emissions, and creating landfills for solid waste are all methods of *controlling* pollution *after* it has been created. **Pollution prevention** means avoiding pollution *at the source* rather than trying to control it afterwards. This also is called "**source reduction.**" We should always try to reduce waste first, and then recycle. This approach can benefit the environment *and* save money.



How does P2 Work?

All pollution is waste. Waste is simply material that is not being used efficiently. Pollution prevention identifies activities or areas in processes where wastes don't need to be created, such as: where efficiency can be improved; where less-toxic materials can be substituted for more-toxic ones; and where energy, water, or other raw materials can be saved. These ideas apply to our daily activities *as well* as to businesses.

The Evolution of the Waste Can



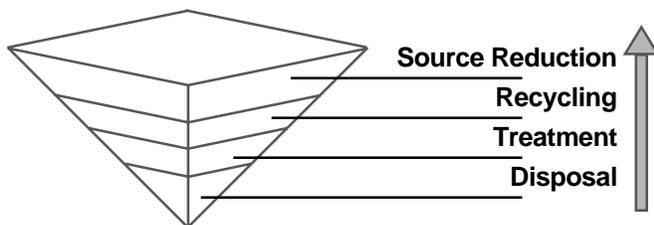
Pollution costs money. Traditionally, producers, consumers and law makers have considered only the cost of treating and disposing of pollution. Pollution is not only expensive to treat; it also takes energy and labor to make in the first place! In the long-run, it costs less to avoid waste than to dispose of it.

Pollution Prevention: The Basics

The P2 Hierarchy

It is not practical to implement pollution prevention everywhere, all at once. The “**P2 Hierarchy**,” (see **figure 1**) puts waste reduction priorities in the following order: source reduction; environmentally sound recycling; treatment to reduce toxicity and volume; and as a last resort, disposal. Always ask “What can I do to reduce waste at the source first?”

Figure 1



What is NOT P2?

Controlling or treating pollution is NOT pollution prevention. When wastewater from homes or factories is treated, the water is cleaner, but the factory is left with a by-product that must be disposed, usually on land. When an electric power plant runs “scrubbers” to clean the waste coming out of the smokestacks, they are left with thousands of tons of waste products. Even trash and wastewater from our homes contain toxic materials that are eventually disposed of on land. Many materials disposed of on land eventually end up in groundwater and in our waterways.

Pollution control and treatment often moves the pollution from one **environmental medium** (air, water, land) to another (see **figure 2**). This

is what is known as **cross-media transfer** of waste. The same amount of waste is created, but we simply are moving it from one place in the environment to another.

In some cases the volume or toxicity of the waste has been reduced, or the movement of the waste in the environment has been reduced. However, the same amount of waste is generated *at the source*.

Treated pollution still causes environmental damage and costs a lot of money, time and energy to deal with. Most important, the pollution was created in the first place.

Where Does Energy Fit into P2?

Using energy is one of the largest sources of waste and pollution; however, our society depends on energy.

Emissions from fossil fuel power plants, automobiles, strip mining and nuclear waste are all pollution that results from energy use.

P2 also promotes increasing our reliance on **renewable energy sources**, such as solar, geothermal and **biofuels** (crop-based fuels).

Pollution prevention programs look for ways to improve energy efficiency in everything from heating and air conditioning to more efficient automobiles, electric motors and lighting. Energy efficiency reduces pollution to air, water and land.

Pollution Prevention: The Basics

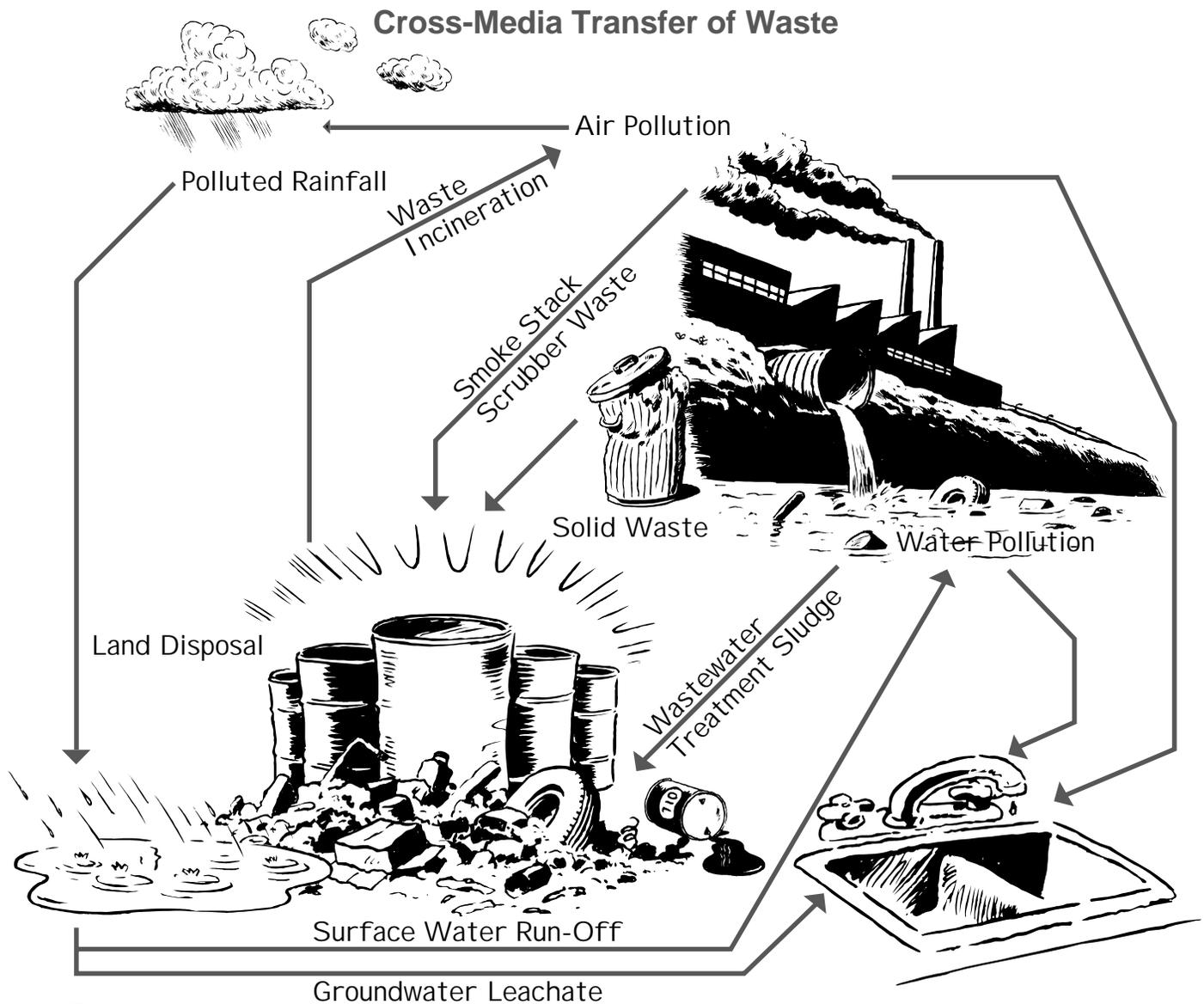


Figure 2

P2 and Sustainability

Very little in nature is wasted, and waste from one organism almost always is useful to another. We can say that nature is **self-sustaining**. Humans have chosen a **non-sustainable** approach. Our life-style depends on a constant flow of new natural resources from the earth. Eventually we will begin to run out of resources. We must

learn to eliminate waste, recycle resources and develop **sustainable** sources of energy. By using P2, we help make energy and resource use more sustainable.

Where do I fit into P2?

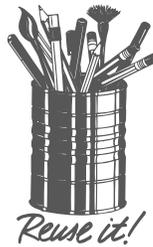
Pollution prevention does not stop at the factory. The people who are buying products also must consider how much waste is generated by using a product.

Pollution Prevention: The Basics

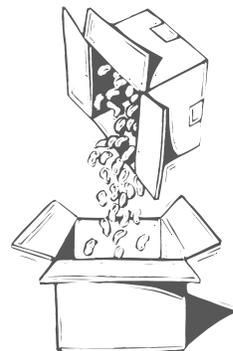
There are many ways consumers can minimize waste production, such as:

- ☑ Only buying things we really need;
- ☑ Reducing energy consumption;
- ☑ Buying reusable products rather than disposable ones;
- ☑ Conserving water;
- ☑ Using products made with less toxic materials;
- ☑ Buying products without wasteful packaging;
- ☑ Reusing and repairing things instead of throwing them away;
- ☑ Recycling; and
- ☑ Buying goods made from recycled materials; etc.

Reducing waste reduces pollution and our reliance on natural resources. The less waste we generate, the more resources we will have for everyone, and at a lower cost to our economy.



Did you know that energy efficient lighting is one of the simplest and most effective ways to reduce energy consumption and the pollution that it generates? One high-efficiency bulb, over its lifetime, eliminates the need to burn 520 pounds of coal!



For more information please visit
Ohio EPA's Office of Pollution
Prevention Web site.

www.epa.state.oh.us/opp

The Office of Pollution Prevention was created to encourage multi-media pollution prevention activities in Ohio to reduce risk to public health, safety, welfare and the environment. Pollution prevention stresses source reduction and, as a second choice, environmentally sound recycling, while avoiding cross media transfers. The office develops information related to pollution prevention, increases awareness of pollution prevention opportunities, and can offer technical assistance to business, government, and the public.



Printed on recycled and recyclable paper
with soy-based inks

Ohio EPA is an Equal Opportunity Employer.