As the Congress moves to rid the U.S. of all effective environmental regulation,\[1\] we should ask whether the alternative --reliance on the marketplace by itself to control pollution--is likely to work. Here we examine a case study --the dry cleaning industry.

There is nothing dry about dry cleaning. All materials processed by dry cleaners--clothing, rugs, or whatever--are soaked in toxic solvents. A few cleaners (about 6%) use Stoddard solvent. The other 94% use perchloroethylene, or “perc” as it is known in the business.\[2\] Perc is a hydrocarbon derived from petroleum, with chlorine molecules attached. As a “chlorinated hydrocarbon,” perc shares certain characteristics with other chlorinated hydrocarbons: they tend to be soluble in fat and not in water (and therefore they tend to accumulate in fatty tissues as they pass through the food chain); they tend to persist for a long time in the environment; and they tend to be toxic. Perc has all of these characteristics.

There are 35,000 dry cleaning establishments in the U.S. and Canada. Together they use 300 million pounds [136 million kilograms] of perc each year. Of this, 13 million pounds is recycled; the remaining 287 million pounds are released into the environment.\[3\] According to estimates by U.S. and Canadian researchers, as much as 90 percent of perc is lost directly to the atmosphere;\[4\] presumably the remainder is washed down the drain along with process water. (Most dry cleaning machines use perc with water added.)

It should be no surprise, then, that perc can be found almost everywhere in the environment, and in much of our food and water. At 577 sites in the U.S., perc could be measured in the air at an average (median) concentration of 1 microgram per cubic meter (1 ug/m3).\[4\] In the U.S., a government survey of “finished water” (water taken directly from the tap) of 36 cities showed that 25% of drinking water contains perc at an average (median) concentration of 3.0 parts per billion (ppb). In Canada, 30 potable water supplies (treated water) contained 1 ppb average, 2 ppb maximum.

Fish in the sea contain 0.3 to 43 ppb of perc. Surveys of U.S. food samples have found perc in grape jelly, chocolate sauce, wheat and corn. As you might expect, butter and oil can contain high levels of perc--100 to 1000 ppb. Perc was detected in 7 out of 8 samples of human breast milk;\[4\] after one mother visited a dry cleaning shop and was then tested, her milk contained 1 ppm (1000 ppb) of perc--500 times as high as the U.S. drinking water standard for children. Therefore we know that many Americans start life imbibing a cocktail of milk laced with perc. (The alternative, infant formula--which perc-contaminated water), it has been shown that perc causes various nervous system disorders (headaches, nausea, dizziness and other problems of the central nervous system), infertility,\[6\] and several kinds of cancer in humans, including leukemia, and cancer of the lung, cervix, liver, pancreas, skin, and esophagus.\[7\]

Indirectly, perc contributes to destruction of the earth’s ozone layer. When perc degrades in the atmosphere, about 8% of it turns into carbon tetrachloride, which is a powerful ozone-depleting chemical. Perc from dry cleaners releases up to 21 million pounds of carbon tetrachloride each year.

The good news is that there are readily-available alternative cleaning technologies that do not rely on toxic chemicals; that are more profitable for the owner or operator; and that would create 33,000 more jobs if the whole U.S. dry cleaning industry were to make the switch.

The new technology is known as “multiprocess wet cleaning;” it relies on a combination of water, natural soaps, steam and heat to clean clothing. Careful inspection and cleaning of garments is done by a skilled technician who decides which technique (steaming, scrubbing, etc.) will best clean a garment on an individual basis--as opposed to dry cleaning, where garments receive a standard treatment. The type of garment, its fabric category, and the degree of soiling and/or stains are key factors in the technician’s decision of how best to clean any given garment. In other words, the new technology substitutes information, skilled judgment, and labor for toxic chemicals, increasing both jobs and profits in the bargain.

U.S. Environmental Protection Agency ran a pilot test of the new technologies--which Greenpeace has dubbed greenclean--and EPA reports that greenclean “is economically competitive and performs as well as, or better than, traditional dry cleaning.” EPA calculations show that dry cleaners who convert an existing shop or start up a new greenclean operation will increase their profits by 6% and their return on investment by 78%. Converting to greenclean will also provide more skilled jobs in the marketplace because it requires 21% more labor. A survey of over 350 customers revealed that customers preferred greenclean over dry cleaning in terms of overall quality of cleaning. One company that sells franchises to the technology is Eco Franchise (their stores are called Ecomat) at 1-800-299-2309, or 212-769-1777. (We are NOT endorsing their business operations, about which we know nothing. Based on EPA tests, we believe their technology is superior to dry cleaning.) There are several Ecomat greenclean shops operating now in New York City.

So here is a clear place for the market to prove itself. A dangerous, polluting technology should be driven off the market by a cheaper, cleaner, more profitable alternative, if the pure-market boosters are right.

Unfortunately, all indications are that the switch cannot take place without increased government intervention. Most dry cleaners are very small operations; they can’t take the risks involved in any changeover until the technology has proven itself and has shown itself to be a market success. Likewise, the technology cannot develop many customers and prove itself until the change has occurred. In sum, it’s a chicken-egg problem. Dry cleaners, being small, get their information chiefly from other dry cleaners and from vendors of chemicals and equipment. Chemicals and expensive equipment are absent from greenclean, so vendors aren’t pushing it. Finally, many garments today are labeled “dry clean only” and wet-process cleaners are reluctant to take on the liabilities involved in ignoring such a label; labeling standards in the garment industry will have to change.

Government--acting on its clear mandate to protect public health and safety--could make it happen. By placing an eco-tax on perc, the government could pay for a program of information, demonstration, and technical assistance to small dry cleaners, to help them evaluate the changeover for themselves. And who
besides government can alert consumers to the real hazards of perc? In the ideal case, government would ban the sale of dry cleaning equipment that relies on dangerous toxic chemicals like perc. (This might be construed as a "taking" of the equipment manufacturers' rights -- but purveyors of perc and perc- using equipment have "taken" our right to clean air, clean water, and clean food. They have cost taxpayers hundreds of millions of dollars in toxic dump cleanup costs, and water filtration costs, not to mention health costs. It seems fair that "the greatest good for the greatest number" should be the ethical standard of judgment here, and that sellers of broadly destructive machines and chemicals should be penalized for their antisocial, dangerous, polluting behavior.)

Can market mechanisms clean up the dry cleaning industry? Apparently not, at least not by themselves. Some government intervention will be necessary.

--Peter Montague


[2] Perc is often known as tetrachloroethylene or PCE, though it has several other names as well. No matter what its name, it is always CAS [Chemical Abstract Services] Number 127-18-4.

[3] Bonnie Rice and Jack Weinberg, DRESSED TO KILL: THE DANGERS OF DRY CLEANING AND THE CASE FOR CHLORINE-FREE ALTERNATIVES. (Chicago, Ill., and Toronto, Ontario: Greenpeace and Pollution Probe, 1994). Copies available from: Greenpeace in Washington, D.C. (phone 202/462-1177) or Pollution Probe in Ontario (phone: 416/345-8408). This is an excellent study, carefully researched and fully-documented. This study, and the report by Mattei (cited below) tell you everything you need to know about dry cleaning and how it can be made environmentally beneficial, more profitable, and a provider of more jobs.


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