

Orthodox Ecological Perspectives

Toxic Chemicals and the Life of the World

By Fred Krueger

Toxic wastes; pollution of the air, water and ground; the introduction of toxic substances into the cycle of life... [these things lead] to death. These causes of death, which are the direct result of our own doing, and of which we are not conscious that we are the cause, in our prayers we ask for God's forgiveness.... We not only destroying the beauty of created nature, but we are bringing harm and death to our fellow human beings. To remedy the situation, we should become conscious of this great sin; we should allow it to become an important motivation to ameliorate our environmental behavior.

- HAH Ecumenical Patriarch Bartholomew
New York City, November 23, 2000

HUMAN BEINGS HAVE AN OBLIGATION OF LOVE TO MAINTAIN A CLEAN ENVIRONMENT and prevent harm to our fellow humans and the rest of creation. Toxic chemicals work against this obligation because they harm human health and the health of God's creation. The term "toxicity" describes the degree of exposure that causes harmful health effects. The more toxic a substance, the smaller the amount that can be harmful.

The problem of toxic chemicals is significant because these substances, even in tiny amounts, cause cancer, birth defects, developmental problems, and a wide range of deadly diseases and serious health consequences. For example, lead is harmful to children in the smallest amounts. Mercury impairs mental and neurological function and causes forgetfulness. Asbestos can lead to lung impairment and lung cancer.

The number of synthetic chemicals is over 100,000. Many of these chemicals are toxic, although no one knows how many because new chemicals are rarely tested for toxicity. Nevertheless, through industrial activity, tens of thousands of tons of toxic materials are released annually into the air, land and water. These chemicals enter the food chain, the air we breathe, and drinking water. Exposure to toxic chemicals can occur in churches, homes, schools, and

work places. Medical science warns that these chemicals can lead to a variety of disorders and diseases. Despite these warnings, toxic chemicals proliferate in everything from batteries to baby bottles.

Toxic chemicals are not only released by industry; they are often found in homes. For example, many household products contain carcinogenic substances (i.e., capable of

causing cancer). Some examples include formaldehyde (found in manufactured wood products such as plywood and particle board), paradichlorobenze (in “para” mothballs), methylene chloride (in paint strippers), and carbaryl (in some insecticides).

These chemicals harm people by causing cancer, mutating genes, deforming unborn babies, disrupting endocrine function, creating toxicity, or irritating skin, mucous membranes or organs. Do you know someone who has had cancer? The American Cancer Society reports that 70 to 90 percent of all cancers are caused by environmental contaminants. In heavily polluted areas cancer is often the number one cause of mortality and its incidence is rising.

For these reasons, toxic chemicals threaten our health and our future. The production, trade, use, and release of many synthetic chemicals is widely recognized as a serious global threat to a healthy environment. Yet, chemical industries produce and release thousands of chemical compounds every year, in most cases with minimal testing and understanding of their impacts on people and the environment.

The Response from the Church

For at least the past decade, the Church has been addressing the problem of toxic chemicals. His All-Holiness Ecumenical Patriarch Bartholomew, in a 2000 presentation in Manila, The Philippines, explained the problem this way:

Technological development has invited environmental aggravations, reaching far beyond the point of their emission. These include atmospheric, sea and water pollutants, radioactive pollutants, the destruction of the ozone, [and] the penetration of toxic substances into the food chain, and others....

The Ecumenical Patriarchate has undertaken an effort to sensitize leaders and citizens to the seriousness of the problem.... On account of this, we do not consider the attempt to enlighten and sensitize the common opinion for the care of the natural environment to be in vain, but rather beneficial.

His All-Holiness has often emphasized the importance of protecting the environment. This responsibility, he says, grows out of a love for our neighbors and the need to care for the health of society.

Keeping the environment clean and proper for life is an obligation of love toward our fellow persons who are directly touched by these problems and a providential responsibility for the future of our values and children. This responsibility of love... urges us to consider the protection of the environment as a serious concern which is not motivated by worship of nature, but from a deep respect and love toward our Creator and toward our fellow man.

The patriarchs of all of the canonical churches have been addressing this modern problem. His Beatitude Patriarch +Alexiy, together with the Holy Synod of Russian Bishops, issued a similar pronouncement to guide the faithful. The following statement is from the Russian Church's 2000 declaration on the need to care for the environment.

Industrial wastes pollute the environment, suppress biological activity, and cause a steady shrinking of biological diversity. A great many harmful, toxic substances have entered the biosphere, which are not naturally part of the earth's circulation; these are accumulating. The ecological balance has been violated. Man now has to face the emergence of pernicious processes in nature, including the failure of its natural reproductive power.

All this happens against a background of unprecedented and unjustified growth of public consumption, especially in the most developed countries, where the search for wealth and luxury has become a norm of life. This situation obstructs a just and fair distribution of natural resources, which are common human property. The consequences of the ecological crisis are proving painful, not only for nature, but also for man. As a result, the entire Earth finds itself on the verge of global ecological disaster.... Solutions to the environmental crisis are to be found in the human heart, not in the economy, technology or politics.

To grasp the seriousness of the toxic chemical problem, here are a few introductory facts about toxic chemicals.

- Across the U.S. more than 7 million accidental poisonings occur each year, with more than 75% involving children under the age of 6!

- Columbia University College of Physicians

- Women who work at home have a 54% higher death rate from cancer than those who work away from home. The 15-year study concluded that this is as a direct result of the much higher exposure level to toxic chemicals in household products than in the workplace.

- Toronto Indoor Air Conference

- Cancer rates have increased since 1901 from only 1 in 8,000 Americans, to 1 in 3 today! By 2015, this disease will afflict 1 of every 2 individuals!

- American Cancer Society

- Over 150 chemicals commonly found in the home are connected to allergies, birth defects, cancer, and psychological disorders.

- Consumer Protection Agency (CPA)

- The CDC reports that 47% of all deaths are due to cancer or heart disease. Both of these diseases are environmental in origin.

- Center for Disease Control, 2012 report

- Environmental pollution and a lack of enforcement of China's laws on toxic chemicals has resulted in the birth defect rate jumping from 8 per 1,000 in 1996, to 15 per 1,000 in 2010.

- Women and Children's Health Development, 2011

- Scientists are discovering a whole universe of health effects associated with the products of our industrial age with profound implications for public health and regulatory policy. The continuous appearance of toxic effects at lower and lower levels of exposure is especially troubling since low-level exposure to some chemicals is practically universal.

- *State of the World 1994*, Worldwatch Institute

- The average American uses about 25 gallons of toxic, hazardous chemical products per year in their home. A major portion of these are found in household cleaning products.

- *Prosperity Without Pollution*, 1991

The 2008 World Cancer Report estimates that at the present pace of increase, cancer rates could rise 50% by the year 2020. Cancer rates are higher in industrial nations, with the United States among the top five in cancer mortality, according to the

World Health Organization. In spite of advances in science and technology, toxic exposure from chemicals in our food, water supply, personal hygiene products, and household cleaning products, contribute to our nation's ill health.

The key to avoiding the hazards of toxic chemicals is intentionality. There must be deliberate effort to remove dangerous chemicals from our lives and to use alternatives. A proper response goes in three directions:

- Learn about the problem of toxic chemicals so that informed decisions can be made
- Remove toxic chemicals from human contact
- Replace all toxic chemicals with safe alternatives

How to Reduce Toxic Chemical Exposures

Here are some simple actions each home and parish can take to minimize toxic chemical exposure and to protect the lives of people and the health of creation.

◆ Eliminate Hazardous Chemicals from the Home and Parish

Research into the hazardous chemicals in consumer products shows that toxic chemicals are proliferating out of control, threatening personal health and the environment. The simple solution is to eliminate these toxic chemicals from home and parish use and to replace them with safe alternatives.

◆ Use Natural Cleaning Products

Cleaning products contain some of the most toxic and carcinogenic chemicals you'll find in a home. Air fresheners, all purpose cleaners, disinfectants, mothballs, and dry cleaned clothing are among the worst. Purchase clean products from companies like Earth Friendly Products (Church groups can make bulk orders by calling EFP directly. Call their special projects coordinator at 949-579-0129, and identify yourself as an Orthodox parish group), or you can find other certified, clean, non-toxic cleaning products in many stores. You are dealing with your personal health and the health of those around you.

◆ Control Pests with Natural Methods

Pesticides kill bugs. They also harm people and sometimes they cause cancer. Most are cancer-causing agents. Stop spraying carcinogens around the home or parish; there are natural means for controlling pests.

Before you act to control a pest, consider if it's really necessary to kill it. What we call pests are living things that are part of a balanced ecosystem. Each

species has a role in the web of life, and we must learn to respect these species. A true pest is one that is doing damage or presenting a health threat. If rats are chewing the electrical wires, that's a different situation than if a moth has landed on the wall. Flies may be unsanitary, but a few spiders won't do much harm and can beneficially control other pests.

You can also make your home or parish unpleasant for pests. Take away their food supply by keeping living areas clean – sweep up crumbs, wipe up spills, and wash dishes after eating. Store food in closed containers, empty garbage, and compost scraps frequently. Dry up their water supply – repair leaky faucets, pipes, and clogged drains.

If you need to eliminate a pest, use the most natural and least toxic methods. Herbal repellents work well too – most pests don't like the smell of bay leaves, cloves, lavender, or cedar. Find a guidebook to alternative insect repellents apply its insights.

◆ **Sleep in a Natural Bed**

A safe bed is important; we spend up to one third of our time in that cozy environment. Many bedsheets are saturated with a no-iron finish that releases formaldehyde (a carcinogenic chemical) as you sleep. Insomnia is one consequence of night time exposure to formaldehyde. Some synthetic mattresses are treated with cancer-causing brominated fire retardants. The PBDEs in polyurethane foam may be as toxic as PCBs and DDT, both banned because of their extreme toxicity. The simple solution is a bed in which every layer is made from untreated natural materials. You can buy natural beds of every firmness, style, and price, from budget to luxurious.

◆ **Use Natural Beauty Products**

Whatever a person puts on his or her skin is soon absorbed into the body. As a general rule, do not put anything on your skin that you would not eat. This includes many popular beauty products. The worst carcinogens are found in hair colorings, hairspray (containing PVP), some lipsticks, nail polish and remover. (For more information, see the special section on toxics in cosmetics, section three).

◆ **Avoid Toxic Flea and Tick Products for Pets**

These products are designed to poison insects, and they usually perform that task quite well. But they can also poison pets and the people who handle them. When these products are combined in the home with other toxic products – pesticides, herbicides, and other harmful products – they represent a serious health risk, especially to children.

◆ Drink Pure Water

Drinking sufficient water lowers the risk of cancer and illness by flushing toxins out of the body. But it's important to drink *clean* water. Arsenic, heavy metals, fluoride, and chlorination by-products are all toxic chemicals that can be found in most municipal tap water. The best solution is to use a water filter.

◆ Eat Clean Organic Food

Foods sometimes contain a variety of different carcinogens, including pesticides and preservatives. It is estimated that 25 to 30 percent of all cancer deaths are attributed to diet related causes.

Many food additives are linked to carcinogenic chemicals. These include artificial sweeteners, aluminum compounds, artificial colors and flavors, preservatives, nitrite and nitrates. Even the caffeine in coffee and chocolate are known in high dose exposure to cause cancer. Additionally there may be pesticides in the fat of meat and dairy products. Be especially concerned about fruits that are out of season and produce imported from countries where pesticide or fungicide use is not well regulated. Grapes and other fresh fruits in January and February should be highly suspect.

The best solution is to eat whole, fresh, organically grown foods, prepared from scratch at home as much as possible, and especially raw vegetables and fruits. It has been found that people who eat five or more servings of fruits and vegetables every day have less than half the risk of developing cancer as people who eat only one to two servings per day. You can also drink green tea. This refreshing beverage inhibits cancer-causing chemicals because of its high levels of antioxidants.

◆ Minimize the Use of Plastics

Many plastics contain carcinogenic or hormone-mimicking ingredients. One that is getting significant attention right now because of new research is Bisphenol-A. This chemical is used to make plastic food containers, plastic water bottles, baby bottles, children's toys, and it even the plastic lining inside some canned foods.

Vinyl chloride is another carcinogenic plastic. It is used in vinyl shower curtains, upholstery material, windows, house siding, water pipes, and many common products.

The solution is to become more aware of the plastic in your life and choose materials other than plastic whenever possible. Instead of buying water in plastic bottles, for example, purchase a safe refillable glass or stainless steel bottle and carry your own filtered water.

◆ Use Water-based Ink Markers

Permanent ink markers contain carcinogenic acetone, cresol, ethanol, phenol, toluene, and xylene. These markers contain industrial solvents that should not be sniffed, eaten, or put on the skin. Skin painting with these markers should be avoided because these chemicals easily penetrate the skin. Instead, use water-based markers (available in the stationary aisle of every drug store or supermarket), soy crayons, or colored pencils.

◆ Take Off Your Shoes in the Home

Even if you choose nontoxic products for use in your home, there is another issue. Every time you go outdoors, you track chemical residues back into the house on your shoes. These residues can include asphalt, pesticides and herbicides from lawns, gardens and sidewalks, and other chemicals present where you walk. Consider leaving your shoes at the door. This is important if you have children who play on the floor. When you walk around your home with toxic traces on your shoes, they rub off on the floor. If you walk barefoot in your home, they can be absorbed through your feet. Children, especially infants, are more susceptible to the dangers of toxic chemicals and carcinogens than adults. Set up a rack next to the front door and leave your shoes there when you enter the house. Have slippers or socks ready to put on if you don't want to go barefoot. Remember to make provisions for guests and have slippers available for them too.

A detailed examination of all toxic chemicals and how to avoid them would fill a book. This treatment of the problem of toxics is only an introduction. By taking the time to study this problem, you are taking steps to preserve the health and the life of those around you.

Summary

Toxic chemicals are a serious problem. According to a group of Nobel prize-winning physicians, led by Dr. Eric Chivian at the Harvard School of Medicine, the problem of toxic chemicals is as serious as the threat of nuclear war. It took decades before political leaders and scientists recognized that we cannot fight and survive a nuclear war. We have gradually come to understand that nuclear war means “mutually assured destruction” (MAD). Because the awful extent of death and destruction from nuclear war is simple and straight-forward to comprehend, virtually everyone is now opposed to it.

Scientists tell us that the world now faces a similar threat to human health and survival from changes to the global environment – through climate change coupled with the poisoning of the air, water and soil by toxic chemicals and other assaults on the environment. Just as ignorance once existed about nuclear war, a similar ignorance now exists about the consequences of widespread toxic pollution for human beings.

Tackling environmental threats, however, is a far more difficult challenge. The problem is more complex by several orders of magnitude than the problem of nuclear war. Our history helps us understand the horrors of war. It does not help us understand the equally dangerous horror of toxic chemicals, in part because it happens slowly, without noise, or outward evidence of danger. A solution to the environmental problem will demand substantial changes in the ways people think and live, in the products that they use, in developed and developing countries alike. It will especially require a proper example from the Orthodox Church beginning at the parish level.

His All-Holiness Ecumenical Patriarch Bartholomew explains our responsibility in this way:

Our first task is the education of people to the seriousness of this problem.

Only when people have grasped the full dimensions of the environmental crisis – only then will they be sufficiently motivated to take action. The education of our parishes to the seriousness of these considerations is therefore the initial task before us.

According to Scripture, “the wages of sin are death” (Rom. 6.23). This is confirmed from our everyday experience of the chain reactions of environmental destruction: changes in the climate, the stripping of the forests from the earth..., radioactivity, the consequence of these is death. Toxic wastes, pollution of the air, water and the ground, introduction of toxic substances into the cycle of life; once more, the consequence is death.

- HAH Ecumenical Patriarch Bartholomew
New York City, November 13, 2000

We have expanded our dominion over Nature to the point where absolute limits to our survival are being reached.... Irrigation for agriculture takes 70% of global demand for water, and almost unimaginably some of the world's greatest rivers are so depleted by the influence of humans that they no longer flow to the sea; and those that do, carry in their waters the chemical fertilizers, herbicides, insecticides, and waste materials they have collected along their course. Desertification is increasing on land at the same time that the fish stocks of the oceans are depleted by overexploitation; and those that remain are being poisoned by toxic materials dumped carelessly in their habitat. The dilemmas we face are problems created by human beings.

- HAH Ecumenical Patriarch Bartholomew
New Orleans, October 21, 2009

