Regulation of Pollution

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The Earth's biosphere is under assault from increasing amounts and types of interacting biological, chemical and physical pollution. It is generally acknowledged that we need regulations that restrict corporations from releasing pollutants that endanger human health and the biosphere. However, on December 18, 2006, the American President instructed the U.S. Environmental Protection Agency (EPA) to remove all restrictions currently placed on U.S. companies to maintain accurate records and disclose the release of toxic chemicals into the country's water, air and soil. The consequence of this new policy will undoubtedly increase the incidence of birth defects, cancer and other diseases, without allowing the affected individuals to place blame. Children and the elderly are likely to suffer the most, but everyone will be affected. It is easy to look the other way and remain silent, but the suffering of some of us will affect us all.

Among biological pollutants produced are fecal contaminants in sources of drinking water. Because of these and other pollutants, human and domestic

animals are frequently contaminated with pathogenic microbes. The cost of pollution to industries runs into billions of dollars per year, but the real losses are not measured by the industry. They concern environmental destruction and loss of sustaining ecosystems.

Plant pathogenic bacteria similarly cause devastation annually costing billions of dollars. These costs mostly affect agriculture and forestry. They can cause to the loss of biodiversity on Earth because of their contribution to ecosystem loss. Their effectiveness as agents of destruction is in part due to our agricultural practices of growing large quantities of single crops in the same large areas repeatedly, year after year. Mass production of cheap foods is the cause of much land use and resource consumption.

Viral pollution of our biosphere can also be devastating. Estimates indicate that there are ten times more viruses on Earth than there are living cells. Once again, disrupting natural habitats for mass production of single food types, particularly meat under overcrowded conditions contributes substantially to viral spread.

Biological pollution, biosafety and biosecurity, including but not limited to deliberate bioterrorism, are of global concern, especially with 6.5 billion humans residing on the Earth. While we are primarily concerned about our own welfare, let's face it – humans are the most significant biological polluters on the planet. Our excessive numbers are responsible for many of our environmental woes. The level of human suffering and death that would result, for example, from an influenza pandemic with over-

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crowding, could, in the future, be in the millions. The biosphere walks a delicate balance between pathogens that are sometimes controllable and non-pathogens that are central to our normal biological cycles. These microbes maintain the nitrogen, phosphorus and carbon cycles throughout the biosphere. And agents that kill one type of bacteria will kill many others nonspecifically.

Chemical pollution has contaminated the entire biosphere, including virtually every human as well as numerous other multicellular species on the planet. There seems to be no escape. Chemical pollutants are present in our water, air, soil, sediments, foods and many day-to-day products that humans use. With the human population increasing to the extent of about 70 million people annually, levels of chemical pollution can only be expected to increase. An excellent, in-your-face, day-to-day example is air pollution causing global warming. The link between chemical pollution in the atmosphere and the physical pollution of a warming biosphere is of international concern even though some individuals and countries are contributing massively to the problem without attempting to promote a solution.

The sum of all biological, chemical and physical pollution to our shared biosphere, and the long-term consequences to life on Earth, are not known. Reliable estimates simply do not exist. What we do know, is that 6.5 billion people, and the addition of 70 million more annually, equates to an ever increasing level of global pollution, a level that cannot be tolerated if sustainable quality life is the goal. The resources needed to support an additional 70 million more humans are immense, particularly as nations such as China and India become more affluent. This means that any solution to global pollution requires immediate human birth control availability, particularly in underdeveloped countries where these services are difficult to obtain. Our first and most important goal must be to provide a managed reduction in the human population. Only this will ultimately lead to the reduced use of non-renewable energy sources and a decrease in atmospheric pollution.

The surface of the Earth has already been significantly altered. Weather patterns may never return to what we once knew as normal. A major fraction of our non-renewable energy supplies are gone forever. The use of wood as a fuel enabled humans to develop the technologies needed for the use of coal as a fuel. The use of coal allowed technologies to be invented and applied to use oil. Oil was in turn used to develop

nuclear technologies as an energy source. Each one of these energy sources released pollution of types that differed from those of its predecessor. Along the way, solar and wind powers were developed. We can hope, but without assurance, that these technologies will help to relieve the problems that the present energy industry, dependent on fossil fuels, is causing.

The sum of all types of pollution has altered our biosphere, destroyed many forests, depleted fish stocks and given rise to city slums that are incompatible with healthy human habitation. None of these problems can be solved without human population control and international cooperation. We need to share technologies, legislate and enforce standards, and each individual must reduce his/her contribution to pollution in the biosphere. Conservation, recycling, reusing and simply not purchasing unnecessary items are all helpful actions.

At the core of all of these activities, or any successful human endeavor, is the need for tolerance, understanding and education. Ideas and innovative research can help to ensure quality of life for each individual, but only if executed with a proper attitude of global responsibility. The goal? A life free of suffering with the basic necessities provided for no more than the number of people our planet can sustain.

If we fail to act and solve our current problems, or if we create new ones, future generations will suffer. And future generations will include our offspring and yours. No amount of personal wealth or military power will protect an individual or a country from death by natural selection in a biosphere polluted beyond repair. There can be no cure for too many humans, except untimely death due to insufficient resources and excess pollution.

Water, Air and Soil Pollution invites its readers to submit opinion articles and letters to the Editor-in-Chief and Associate Editors on any aspect of pollution. These articles should be designed to assist in the development of innovative ideas and solutions. We must strive to build communication between individuals and institutions from all parts of the globe. Humans have immense problem-solving skills, and we need to put these skills into action for our common future. Solving our problems may allow us to avoid a head-on collision. We encourage communication between authors of the diverse research and review manuscripts published in *Water, Air and Soil Pollution*, as well as in other journals.