

## Understanding Pollution: How Safe is Our Soil?

Pollution affects many things in the world in which we live, but one thing that is not often talked about is the contamination of soil. One of the reasons that soil pollution is not often talked about is the old saying “out of sight, out of mind.” We live in a concrete jungle. Sidewalks, roads, highways, houses, skyscrapers, and office buildings cover the soil that our ancestors were so familiar with. The problem is that pretending a problem does not exist doesn’t make it go away. There are many dangers to both the environment, our food supply, and ultimately us that are caused by soil contamination, and it has a myriad of sources from industry to products that we use without even thinking about it.



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Soil contamination is defined as “the presence of man-made chemicals or other alteration to the natural soil environment.”<sup>i</sup> As you can imagine there are a great many manmade chemicals, and a large number of those chemicals have detrimental effects humans. Since our food is grown in soil, if that soil is contaminated then the contaminants will find their way into whatever food is grown there. Just a few of the more common chemicals that are contaminating our soil are asbestos, heavy metals, such as lead, and finally pesticides. Asbestos can cause scarring of the lungs in humans which in turn causes shortness of breath, difficulty breathing, and coughing; all of which worsen as time passes, and it has also been labeled as a human carcinogen which means it can cause cancers.<sup>ii</sup> Because asbestos particles are so small and invisible to the naked eye, and are so

difficult to break up they spread invisibly through water, air, and soil.<sup>iii</sup> Lead is quite possibly one of the most dangerous of soil contaminants. In adults lead poisoning causes a loss of coordination, nerve damage to sensory organs, loss of hearing and vision, increased blood pressure, and problems with our reproductive systems.<sup>iv</sup> In children the effects of exposure to lead are even worse. Damage to the brain and nervous system, vision and hearing loss, liver damage, kidney damage, and even death are possible in children who have been exposed to lead. Finally, we come to pesticides. Because pesticides can be created from many different compounds there are many different effects that they can have on human health. Some pesticides will increase the likelihood of cancer in humans, others will attack the endocrine system which is responsible for the secretion of hormones, and still others will attack the nervous system and our very ability to think and function.<sup>v</sup>



One of the biggest problems of pesticides specifically, and other contaminants in general, is that they do not just kill their intended victims, but also any other small organisms which may be in the soil.<sup>vi</sup> This is a bad thing because the soil requires those organisms in order to remain fertile ground for plants and more importantly the crops upon which we rely on for a stable supply of food.<sup>vii</sup> If the soil is contaminated by any contaminant the possible yield, or amount of crops able to be grown, in a given area will go down. This obviously is worrying because it affects the size of our food supply. The food supply that has allowed us to settle down and build society as we know it as the dominant species on the planet. When the contaminant is first introduced into the

soil it will begin to kill off local fungi and bacteria.<sup>viii</sup> That may seem like a good thing, but on a micro-organism level fungi and bacteria are the symbiotic glues that hold soil ecosystems together, and as they are destroyed the soil begins to erode. Over time, the fertility of the soil will continue to go down further decreasing the size of the crops being grown there. In addition, many plants that are grown in contaminated soil will be smaller than plants grown in non-contaminated soil.<sup>ix</sup>



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The sources of soil contamination are many and varied. One of the major causes of soil contamination is actually our farmers. As the world's population has grown, and more and more food is needed to feed that population, farmers have begun to overuse fertilizers and pesticides and they are having a detrimental effect on the land upon which they are used.<sup>x</sup> Another major contributor is the waste water from industrial plants and factories.<sup>xi</sup> As that waste water is released into the environment it will contaminate not just the soil, but also any other water source that it comes into contact with. A third major source is our sewage. Think of what's in the sewer. Now, think about where our sewage ends up. It at any point that sewage comes into contact with fertile soil it will leave something behind, and that soil will not be as fertile as it once was. Then there is contamination from the waste produced by nuclear power plants, which are dumped underground, and leak and spread through the soil they are dumped into.<sup>xii</sup>

Soil contamination is a serious issue that affects not just the environment and human health, but also strikes at the backbone of civilization: agriculture. The fact that we willfully use items such

as pesticides, lead paints, and nuclear power shows that our society has reached a dangerous point where we must decide if we care about consequences. It is not our children or our grandchildren who will have to deal with the problem of soil pollution. That is, it is not them who will have to deal with it unless we decide that it is not worth our time. The world in which we live has many problems, but there are solutions out there. The solutions can begin to be found if just one thing is accomplished: Making people care.

## About the Author



**Dominick Principe** is a graduate of Rowan University with dual Bachelor Degrees in Elementary Education and Writing Arts. He is a prolific reader who devours any book put before him, and feels that life is one great long book without an end. He fills his hours constantly exploring new information, and seeking to educate himself in the ways of the world. He puts all of that knowledge and his passion for learning to good use teaching English as a second

language to students of all ages. When his nose isn't buried in a book, or in class teaching, then he can generally be found typing away at his computer working on some random piece of writing that he was inspired to do.

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<sup>i</sup> "Soil Contamination." *ScienceDaily*. ScienceDaily. Web. 23 Nov. 2014.

<[http://www.sciencedaily.com/articles/s/soil\\_contamination.htm](http://www.sciencedaily.com/articles/s/soil_contamination.htm)>.

<sup>ii</sup> "Asbestos." *EPA*. Environmental Protection Agency. Web. 23 Nov. 2014.

<<http://www.epa.gov/ttnatw01/hlthef/asbestos.html>>.

<sup>iii</sup> "Asbestos Ecological Impacts: The Affects of Asbestos on the Environment on Human Health." *Bright Hub*. Web. 23 Nov. 2014. <<http://www.brighthub.com/environment/science-environmental/articles/86213.aspx>>.

<sup>iv</sup> "Human Health and Lead." *EPA*. Environmental Protection Agency. Web. 23 Nov. 2014.

<<http://www.epa.gov/superfund/lead/health.htm>>.

<sup>v</sup> "Human Health Issues | Pesticides | US EPA." *EPA*. Environmental Protection Agency. Web. 23 Nov. 2014. <<http://www.epa.gov/pesticides/health/human.htm>>.

<sup>vi</sup> "Pesticides and Pollution." *Pesticides and Pollution*. Web. 23 Nov. 2014.

<<http://www.greenfootsteps.com/pesticides-and-pollution.html#sthash.LBwsNQax.dpbs>>.

<sup>vii</sup> "Pesticides and Pollution." *Pesticides and Pollution*. Web. 23 Nov. 2014.

<<http://www.greenfootsteps.com/pesticides-and-pollution.html#sthash.LBwsNQax.dpbs>>.

<sup>viii</sup> "Causes and Effects of Soil Pollution - Conserve Energy Future." *ConserveEnergyFuture*. Web. 23 Nov. 2014. <<http://www.conserve-energy-future.com/causes-and-effects-of-soil-pollution.php>>.

<sup>ix</sup> "Causes and Effects of Soil Pollution - Conserve Energy Future." *ConserveEnergyFuture*. Web. 23 Nov. 2014. <<http://www.conserve-energy-future.com/causes-and-effects-of-soil-pollution.php>>.

<sup>x</sup> "Causes and Effects of Soil Pollution - Conserve Energy Future." *ConserveEnergyFuture*. Web. 23 Nov. 2014. <<http://www.conserve-energy-future.com/causes-and-effects-of-soil-pollution.php>>.

<sup>xi</sup> "What Is Soil Contamination." *What Is Soil Contamination*. Web. 23 Nov. 2014.

<<http://eschooltoday.com/pollution/land-pollution/what-is-soil-contamination.html>>.

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<sup>xii</sup> "Causes and Effects of Soil Pollution - Conserve Energy Future." *ConserveEnergyFuture*. Web. 23 Nov. 2014. <<http://www.conserve-energy-future.com/causes-and-effects-of-soil-pollution.php>>.