

MEDIA INFORMATION

The Environmental Toxin Report 2015 quantifies for the first time the health impacts caused by the world's most serious environmental contaminations:

The six most dangerous environmental toxins in the world in 2015

Zurich/Switzerland – 21 October 2015 – The new Environmental Toxin Report 2015, published jointly by the Green Cross Switzerland environmental organisation and New York-based Pure Earth (formerly Blacksmith Institute) identifies the six most dangerous environmental toxins in the world. Ninety-five million people are at risk from these six toxins. Never before in the history of mankind have poor people been part of the population endangered by exceptionally high levels of toxin. Today, ecologically damaging toxins are found in populated areas in considerably higher quantities than ever before. Without taking appropriate countermeasures the number of people exposed to dangerous levels of pollutants will continue to rise.

Identification of the six most dangerous environmental toxins

According to the authors of the Environmental Toxin Report 2015, out of all pollutants worldwide, lead, cadmium, chromium, mercury, pesticides, and radionuclides are clearly leading the list of most dangerous toxins. Compared to other substances, it should be noted that these six toxins not only occur in more areas and at higher levels than others, they also pose a higher risk for a greater number of people. Their characteristics have been extensively researched and documented and clearly substantiate their toxicity.

Assessment of deaths and disabilities caused worldwide

The Environmental Toxin Report 2015 quantifies the health impacts caused by these six environmental toxins in "Disability Adjusted Life Years" (DALY). These DALY are used to calculate the years lost due to premature death and the negative effects on the quality of life resulting from disease. Based on the collected data, approximately 14.5 million DALY are attributable to toxic substances in 49 analysed countries. The Environmental Toxin Report 2015 will be available for downloading at www.greencross.ch on 21 October 2015, at 9 a.m. CEST.

95 million people are at risk from the six most dangerous environmental toxins in the world:

1. **26 million people are exposed to lead:** 9 million lost life years
2. **19 million people are exposed to mercury:** 1.5. million lost life years
3. **16 million people are exposed to hexavalent chromium:** 3 million lost life years
4. **22 million people are exposed to radionuclides ***
5. **7 million people are exposed to pesticides:** 1 million lost life years
6. **5 million people are exposed to cadmium:** 250,000 lost life years

*Since radionuclides represent a special heterogeneous group of environmental toxins, DALY values are not yet available at this time.

How many contaminated sites are there really?

Since 2008 more than 3,200 contaminated sites have been identified in 49 countries and local assessment studies have been conducted at over 2,300 of them. These sites alone are posing a potential health threat to more than 93 million people. "However, we assume that these 3,200 sites represent only a small fraction of the actual number", said Richard Fuller, Founder of Pure Earth. Under the leadership of Pure Earth, soil samples have been taken this year in eight randomly selected administrative districts of Ghana. On the basis of the results of the analyses compared to a recommended limit, such as the risk levels set by USEPA (United States Environmental Protection Agency), the primary contaminant was determined at each site. Within the scope of this project, 72 contaminated sites were identified where the measured values exceeded the recommended limits. Based on further computations, the team came to the conclusion that there are 1,944 sites with heavy metal contamination in Ghana (95% CI 812-3075). This figure approximately corresponds to nine

times the number of contaminated sites currently listed in the database of Pure Earth and Green Cross Switzerland.

Overview of the characteristics of the six most dangerous environmental toxins in the world in 2015

Industries using **hexavalent chromium** include tanneries, metalworking, stainless steel welding, the production of chromate and the manufacture of chromium pigments. Yellow, orange and red dyes frequently contain chromium pigments. Consequently, chromium may be found in leather tanned with chromium sulphate, in stainless steel cookware and in wood treated with copper dichromate. As a result of the availability of cheap labour and materials, almost half of the world's industrial tanneries and leather processing operations are located in countries with low and medium income levels. Depending on the route of exposure, chromium may cause damage to the respiratory and gastrointestinal systems. Furthermore, hexavalent chromium is a known human carcinogen and may be the cause of a number of different types of cancer.

Lead is obtained from underground mines and subsequently used in a wide variety of products and combined with other metals to produce alloys. Lead is frequently released into the environment by mining, melting and even by the recycling of used lead-acid batteries (ULAB). Exposure to lead by inhalation of contaminated air and oral ingestion of contaminated soil, polluted water or contaminated food products as well as through skin contact may lead to a number of negative health consequences, including neurological disorders, reduced IQ, anaemia, nervous disorders and a host of other diseases. High lead concentrations may cause lead poisoning in children and can ultimately result in death.

Elemental **mercury** is most frequently released into the environment in the process of its extraction from red mercuric sulphide and by emissions from coal-fired power plants. It is used in many industrial processes, e.g. the extraction of gold from rock, and it is also contained in products, such as thermometers, dental fillings, and energy-saving lamps. Exposure to elemental mercury can cause damage to the brain, the kidneys and the immune system. It may also have a negative effect on foetal development. Organic mercury is generated when elemental mercury is combined with carbon and most frequently occurs in the environment in the form of methyl mercury, another potent neurotoxin.

Pesticides generally are substances of a chemical nature, which have been widely used for quite some time in agricultural operations worldwide to protect crops from insect infestation and thus contribute to increasing agricultural yields. However, rainfall will cause a significant amount of such pesticides to leach into surface and groundwater. As a result, people living nearby are exposed to pesticides. Headaches, nausea, dizziness, and cramps are generally among the acute negative health effects. Chronic exposure to pesticides may have an extensive negative impact on the neurological, reproductive and dermatological health of those affected.

The release of **radionuclides** into the environment is mostly attributable to industrial processes, including uranium mining, the disposal of mining waste, the production and testing of nuclear weapons, the production of nuclear energy and the development and use of radiology products in medical technology. Exposure to radionuclides through inhalation or oral ingestion may have acute health consequences, ranging from nausea, vomiting and headaches up to chronic problems, such as fatigue, lethargy, fever, hair loss, dizziness, disorientation, diarrhoea, bloody stool, low blood pressure and up to death. Ionising radiation as a result of the exposure to radionuclides may cause cellular damage in humans and subsequently result in cancer.

A significant change in this year's Environmental Toxin Report is the inclusion of **cadmium** as a dangerous global contaminant. According to the expanded database of Pure Earth, cadmium appears on a regular basis, particularly in Asia. Cadmium is increasingly generated as a by-product in relation to the global increase in mining activities to extract zinc, lead and copper as well as the production of

pesticides and fertilisers. Even minute quantities of cadmium may have severe health impacts. Because of its high toxicity the use of cadmium in jewellery, alloys and PVC has been prohibited within the EU since December 2011. Cadmium poisoning caused by inhalation of cadmium dust and fumes or by ingestion of cadmium compounds rapidly leads to dizziness, dry throat and nausea. After a period of 24 hours, bronchitis, bronchopneumonia or an acute pulmonary oedema may be experienced.

About Pure Earth and Green Cross Switzerland

Pure Earth (formerly Blacksmith Institute) is an internationally operating non-profit-organisation committed to develop solutions to life-threatening environmental problems in developing nations. The organisation is involved in the identification and clean-up of the most polluted sites on earth. Pure Earth is focusing on places where the health especially of women and children is most at risk. The New York-based organisation works hand-in-hand with governments, the international community, NGOs and local agencies to develop and implement innovative, cost-effective solutions to save lives. Pure Earth has realised over 50 projects since 1999 and is currently taking part in more than 40 projects in 20 countries.

Green Cross Switzerland is working to overcome the consequential damages from industrial and military disasters and to clean up contaminated sites from the Cold War era. A top priority is the improvement of the quality of life of people affected by chemical, radioactive and other kinds of contamination and the promotion of sustainable development in the spirit of cooperation instead of confrontation.

Green Cross International (GCI), established by Mikhail Gorbachev, is an independent non-profit, non-government organisation, acting through advocacy at the highest level and through local projects to overcome the interrelated global challenges of security, the fight against poverty and destruction of the environment. GCI is headquartered in Geneva and maintains a growing network of national organisations in over 30 countries.

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