

## **MEDIA RELEASE**

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Green Cross Switzerland presents the first worldwide study on the populations affected by uranium mining sites:

### **6.4 million people are at risk from exposure from uranium mines**

Based on the results of the study, Green Cross Switzerland is requesting the corporate groups involved in uranium mining in Africa, Australia, Canada and the USA to properly shut down their uranium mining sites according to the polluter-pays principle to ensure that no further decontamination is necessary within the next 1000 years. The professional decontamination and closing of uranium mining sites in the countries of Central Asia requires the support of the international community, as these countries do not have the necessary resources at their disposal.

In cooperation with Prof. Jonathan Samet, Dean of the Colorado School of Public Health (USA), Green Cross Switzerland is publishing a first study on the health risks for communities located close to uranium mines. Uranium is obtained from uranium ores. After it is mined, the uranium-containing material is separated from other rocks, crushed, milled, chemically treated, enriched and made into fuel rods and fuel elements. This process causes an increased threat of exposure to radiation for the environment and the population and the risk of adverse health effects. The results of the study have shown that approximately 6.4 million people living in the vicinity of roughly 230 uranium mines are exposed to radiation.

Uranium mining sites, whether exploited, active or planned, were included in the investigations regarding radiation exposure. Worldwide, there are approximately 13 uranium mine operators supplying 444 active nuclear power plants. An additional 63 nuclear power plants are under construction. While Europe and North America used to hold the lion's share of the cumulated uranium production in the past, each with over 30 percent, nowadays it is produced in Kazakhstan (39%), Canada (22.5%), Australia (0.1%), Niger (0.05%), Namibia (0.05%) and Russia (0.04%), with the remaining 38.26 percent coming from a variety of other nations.

#### *Indigenous people disproportionately affected by exposure to radiation*

The study also shows that indigenous people, particularly in Australia, Africa and the USA, are disproportionately affected by radiation exposure from uranium mining sites, although they represent only a small portion of the population. In the beginning, it was common practice in the United States to work in small uranium mines, so-called "dog hole" mines. There were many such mines, particularly in the territory of the Navajo nation, that are causing concern to this day. Today, the French Areva Nuclear Materials Group operates uranium mines in the Tuareg region in Niger where about 160,000 people are endangered by radiation exposure. According to Green Cross Switzerland's investigations, the Swiss nuclear power plants are purchasing their uranium from the Areva Group.

Radiation is threatening communities located close to uranium mines in the form of tailing piles, wastewater ponds and the recycling of contaminated materials for construction purposes. In addition, the health of the local population is negatively impacted by the dissemination of dust from tailing piles to agricultural land and grassland, the water and human settlements as well as the contamination of agricultural products and livestock coming into contact with the fine residue from processing uranium (tailings).

### *Communities' exposure to radiation*

A key concern related to the local population is the danger of radiation exposure due to the proximity to mining and ore handling facilities. Above all, the exposure results from the potential of contact with uranium and its decay chain. Uranium isotopes decay through several series where radioactive gases are released, primarily radon (from radium) and thoron (from thorium). In the mines, these gases diffuse through the air (or are absorbed into water) and contaminate the air the workers are breathing. In the outdoor air the natural part of radon may increase if there is significant contamination. Such considerable increases in the radon concentration have previously been documented in some areas. Radon is a gas with a relatively short half-life. Its decay products include two solid, radioactive polonium isotopes, which release alpha particles as they decay. When such alpha decays occur in the lungs the alpha particles can reach the nuclei of the cells lining the lung and damage the cells, including the DNA.

Unlike gaseous radon, the decay products (progeny) are solid and form small clusters attaching to water molecules and other small particles. Mine workers and others who are exposed inhale the progeny which may deposit on the lining of the lung. When an alpha decay occurs, the cell nuclei are within the range of the alpha particles. As the alpha particles pass through the cells, irreparable damage may be caused, ultimately leading to the development of lung cancer. The decay series extends through several long-lived radionuclides, so-called internal emitters. These remain in the body after inhalation or ingestion and result in permanent radiation exposure within the body. Gamma exposure may also result from radioactive tailing piles that are located close to people or animals.

Green Cross Switzerland is actively engaged in the worldwide phase-out of nuclear power and provides support to self-help for those affected by radioactive, chemical and other contamination. The purpose of Green Cross's program "Water-Life-Peace" is to maintain access to clean water by professionally disposing of environmental toxins and cleaning up inoperative uranium mines. With its international programs "Social and Medical Care" and "Legacy of the Cold War" Green Cross Switzerland is committed to overcoming the consequences of industrial and military disasters and the contamination from the Cold War era. The goals of the ZEW-certified environmental organisation are supported by the Green Cross parliamentary group.

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