

PRESS RELEASE

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Chernobyl: effects of forest fires in areas with radioactive contamination

Radioactive aerosols and rust are spreading across the upper layer of the atmosphere

In summer 2010, devastating forest fires raged in many areas of Russia, including areas that were seriously affected by radioactive contamination in the Chernobyl catastrophe in 1986. Green Cross Switzerland has been helping the affected population to help themselves in these areas for many years with the Social and Medical Care Programme. As due to the combustion of contaminated forests, radionuclides could easily spread across large areas via wind and ashes, a hazard expert report on the effects of forest fires in the areas of Chernobyl contaminated by radioactivity was compiled in collaboration with Prof. Dr. Vladimir M. Kusnetsow.

From 2010 to 2011, 1,876 radiation measurements were carried out in four of the villages evacuated in the 1980s and the surrounding forests in the Bryansk Oblast. Furthermore, 248 soil and wood samples were analysed. In an area contaminated with 1 curie per km² (1 Ci/km²), the average annual dose through external radiation is 1 millisievert per year, and in the zones of the Bryansk Oblast affected with 15-40 Ci/km², accordingly up to 40 millisievert per year (international limit value is 1.0 mSv/year). The town of Nowosybkow is located here, with around 40,000 inhabitants and several villages. The dose through internal radiation via food and water is not included here. The average level of radionuclides absorbed through food is sometimes three times above the limit value, with persons living in seriously contaminated areas.

Radioactive forest contamination after the Chernobyl catastrophe has risen

As the investigation of the forests near Bryansk showed, after the reactor accident in the nuclear power station at Chernobyl, 171,300 hectares of forest were contaminated with radionuclides (contamination level: 1-5 Ci/km² – 102,600 ha, 5-15 Ci/km² – 39,700 ha, 15-40 Ci/km² – 26,800 ha, more than 40 Ci/km² – 2,200 hectares). The forests are therefore particularly badly contaminated, because after the reactor catastrophe it acted as a physical barrier for air masses, which prevented the radioactive particles in the air from moving further. We only know the volume of the most highly contaminated part (29,000 hectares): 6.3 million m³. The radionuclides are increasingly integrated into the wood of the trees, and today can be found in the uppermost layers of wood (5 – 8 cm), and Caesium137 quickly accumulates in the leaves and needles. Due to the ongoing incorporation, every year more than ten thousand m³ of wood is unusable for commercial use.

Due to the radiation risk, the forests in Bryansk have not been cultivated for 27 years now and are impassable today. In certain places, the radiation is so strong that any work must be monitored by a radiation protection service. This makes both fire prevention and fire fighting almost impossible. Forest fires in the areas contaminated with radionuclides are a significant radio ecological threat and pose a much greater threat than previously assumed. Here, it is important to know that fires release the radionuclides contained in the outer layers of wood, and carry them into the upper layers of the atmosphere, where they are then spread across large distances. Therefore, not only the inhabitants of the contaminated area are exposed to radioactive radiation, but also people who live a great distance away. After intensive forest fires in Bryansk in 2002 for example, the radiocaesium value was thirty times higher for a few days in the EU city Vilnius (Lithuania). If the pollution had been longer lasting due to adverse

weather conditions, this could have led to significant increases in the annual radiation dose. In addition, the forest fires in the Bryansk Oblast are growing rapidly due to lack of fire prevention amongst other things. Between 2003 and 2009 alone, their number per year had tripled and the size of the area burned annually had even increased fourteen fold.

Forest fires increase annual dose uptake

In the densely populated areas, almost all the forests are contaminated by radionuclides, which has wide reaching ecological, social and economic consequences. The most urgent task in the decontamination of the forest contaminated by radionuclides is to restore the significant socio-economic infrastructure in the affected areas and promote marketing. In the government programme to deal with the consequences of radioactive accidents for the period up to 2010, no budget was provided for forestry work. Even in the laboratories for radiation control, the service life has expired on practically all of the equipment, and the spectrometers used since 1990 are hardly fit for the job anymore. In addition, there is a lack of concepts for secure storage of radioactive wood waste. The annual risk of forest fire in Russia, Belarus and the Ukraine is an ongoing radioactive threat to the neighbouring areas and EU countries.

Due to the forest fires, the dose uptake increases every year amongst the population who are already suffering the consequences of the Chernobyl disaster. Currently, the dose rates in the forests are on average between 0.15 – 0.48 $\mu\text{Sv/h}$, with observed values of up to 5 $\mu\text{Sv/h}$ and more. The highest levels (2-6 $\mu\text{Sv/h}$) have been recorded in some parts of the Krasnogorsk forestry near Klinsky. In light of the European limit value of 1 $\mu\text{Sv/h}$, the forest can practically no longer be cultivated without setting up radiation protection.

Radiation monitoring crucial for fire prevention

According to the authors of the expert report, the following reforms are urgently required in relation to the forestry of the Bryansk region:

- Upgrading the instruments for radiation monitoring in the existing laboratories
- Researching new forest cultivation technologies for example extraction and processing of the non-contaminated inner part of the trees
- Compiling a concept for safe further processing and storage of radioactive wood waste
- Raising awareness of the importance of the problem with the regional and national political decision makers and in the media
- Explaining to the population to avoid the seriously contaminated forests

Green Cross Switzerland is committed to addressing the subsequent damages caused by industrial and military disasters, and the decontamination of contaminated sites from the time of the Cold War. The top priority is the improvement of quality of life of the people, who are affected by chemical, radioactive and other types of contamination, and the promotion of sustainable development in the sense of cooperation instead of confrontation.

The aims of the Zewo certified environmental organisation will be supported by the parliamentary group Green Cross. It is composed of 32 councils of states and 104 national councils across all the parties.

Green Cross International (GCI), founded by Michail Gorbatschow, is an independent, charitable non-governmental organisation, which is committed to addressing the global challenges of security, fighting poverty and environmental destruction combined, through representation of interests at the highest level and local projects. GCI with headquarters in Geneva maintains a growing network of national organisations in more than 30 countries.

You can download the Green Cross expert report about the effects of forest fires in contaminated areas in Russian using this link (insert).

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