

## **Report on potential consequences of a meltdown in Zaporizhzhia**

### **Medical organisation calls for a ban on military attacks on nuclear power plants**

2 August 2023

The medical peace organization IPPNW calls on member states of the Nuclear Non-Proliferation Treaty (NPT) to unequivocally condemn any attacks on nuclear facilities, including reactors, spent fuel storage facilities and other critical infrastructure or personnel. Nuclear power plants should not be allowed to be used as storage facilities for heavy weapons or as bases for military personnel. Member states should also be required, on a mandatory basis, to agree to protecting all structures, systems and components essential to the safe operation of nuclear power plants.

"Any nuclear meltdown, whether caused by military activities or due to technical safety deficiencies in peacetime, would result in severe permanent damage to the environment and human health, in some cases with fatal consequences," said Angelika Claußen, MD, European Vice President of the International Physicians for the Prevention of Nuclear War (IPPNW), at the presentation of a report commissioned by IPPNW on the possible effects of a nuclear meltdown in Zaporizhzhia, at the Nuclear Non-Proliferation Treaty Preparatory Commission (NPT PrepCom) in Vienna. Preliminary results of a study results were presented today at a press conference on the sidelines of the conference in Vienna.

Dr. Nikolaus Müllner from the Institute for Safety and Risk Sciences (University of Natural Resources and Applied Life Sciences, Vienna) emphasizes: "The dispersion calculations show that drastic measures such as the establishment of an exclusion zone would most likely be limited to the area around the nuclear power plant. However, the probability for a large part of Europe to be affected by other measures, e.g. restrictions in agricultural use, is not negligible."

"Adequate disaster management during wartime is not possible. One should recall that Russian troops set fire to administrative buildings and the main transformer of the Zaporizhzhia nuclear power plant as early as 2022 and prohibited firefighters from entering the plant."

"Currently, Russia and Ukraine are accusing each other of planning a terrorist attack on the power plant. In this way, the power plant has become a weapon of war, posing a threat to millions of people in Ukraine, neighboring countries and throughout Europe. The power plant and its safety have become a pawn in this war. The right to be spared from radioactive contamination should never have to be negotiated", stated Chuck Johnson, IPPNW Program Director for nuclear weapons and disarmament affairs.

In the Ukraine war, an attack on the Zaporizhzhia nuclear power plant could have catastrophic consequences, causing a meltdown in up to six reactors and their associated spent fuel pools. An accidental or intentional meltdown at any or all of these facilities risks spreading radioactive contamination of cesium and other radioactive isotopes through the air and depositing it in the soil of Ukraine and surrounding states. This has serious short- and long-term implications for human health, the environment, plants and animals, and food security. The International Atomic Energy Agency (IAEA) has repeatedly warned of the dangers of military action in and on the site.

The Chernobyl nuclear reactor burned for 11 days. 36 % of the of the total radioactive fallout occurred in Belarus, Russia and Ukraine, and about 53% to the rest of Europe. 11 % was distributed to the rest of the world. The Belarusian physician and epidemiologist Lydia Zablotska evaluated the health consequences of the Chernobyl accident 30 years later. Her epidemiological studies report an increased long-term risk of leukemia, cardiovascular and cerebrovascular disease, and cataracts in

clean-up workers, and for thyroid cancer and non-malignant diseases among children and adolescents. Researchers Maureen Hatch and Elisabeth Cardis point out that the dose-dependent increase in thyroid cancer following exposure to iodine-131 in childhood in Ukraine and Belarus has been shown to persist for decades and that studies of clean-up workers point to a dose-dependent increase in thyroid cancer and hematologic malignancies in adults. They also report an increase in cardiovascular and cerebrovascular disease.

During the Fukushima nuclear meltdown in 2011, large amounts of radioactive material were released into the atmosphere from the damaged reactors and the spent fuel storage pool, and entered the groundwater and sea. The release continued for several weeks (26 days). 19% of the radioactive fallout affected the main Japanese island of Honshu, 79% entered the Pacific Ocean, and 2% spread around the world. It was pure luck that it did not rain on the night of March 14-15, 2011, when the largest radioactive cloud passed over Japan, including the Tokyo metropolitan area with 36 million inhabitants.

The health effects of the Chernobyl disaster have so far been better studied than those of the Fukushima nuclear accident, although in both cases the important opportunity for large population-based long-term studies of the health effects of radiation exposure has been missed. The results of the Chernobyl studies correlate well with other medical studies of the health effects of low doses of radiation conducted among nuclear workers, as well as with studies of the health effects of uranium mining, other low-dose radiological exposures, and also studies on the influence of residing near nuclear power plants and variations in background radiation on childhood cancers, especially leukemia.

IPPNW Germany has commissioned the Institute for Safety and Risk Sciences to conduct a short study modeling the possible radiological dispersion zones in the event of a nuclear meltdown. You can find the a PowerPoint presentation with the preliminary results here:

[https://www.ippnw.de/commonFiles/ppt/Muellner\\_for\\_IPPNW\\_Nuclear\\_Plants\\_in\\_Warzones.ppt](https://www.ippnw.de/commonFiles/ppt/Muellner_for_IPPNW_Nuclear_Plants_in_Warzones.ppt)

A written version of the report will be published by IPPNW by mid-August. The full report with new dispersion calculations will follow this Autumn.

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**Further information:**

Consequences of a Large Release of Cesium 137 from Nuclear Power Plant Zaporizhzhia Powerpoint-Präsentation, Nikolaus Müllner, 2023)

[https://www.ippnw.de/commonFiles/ppt/Muellner\\_for\\_IPPNW\\_Nuclear\\_Plants\\_in\\_Warzones.ppt](https://www.ippnw.de/commonFiles/ppt/Muellner_for_IPPNW_Nuclear_Plants_in_Warzones.ppt)

IPPNW Call on Member States at NPT PrepCom (IPPNW, 2023):

[http://ippnw.de/commonFiles/pdfs/Atomenergie/IPPNW\\_for\\_NPT\\_PrepCom\\_Zaporizhzhia\\_Nuclear\\_Plant.pdf](http://ippnw.de/commonFiles/pdfs/Atomenergie/IPPNW_for_NPT_PrepCom_Zaporizhzhia_Nuclear_Plant.pdf)

New Findings and Insights on the Consequences of Radiological Disaster (IPPNW, 2023):

[http://ippnw.de/commonFiles/pdfs/Atomenergie/IPPNW\\_New\\_findings\\_on\\_consequences\\_of\\_radiological\\_disaster\\_.pdf](http://ippnw.de/commonFiles/pdfs/Atomenergie/IPPNW_New_findings_on_consequences_of_radiological_disaster_.pdf)

Gesundheitliche Folgen der Atomkatastrophen von Tschernobyl und Fukushima (IPPNW Report, 2016):

[https://www.ippnw.de/commonFiles/pdfs/Atomenergie/IPPNW\\_Report\\_T30\\_F5\\_Folgen\\_web.pdf](https://www.ippnw.de/commonFiles/pdfs/Atomenergie/IPPNW_Report_T30_F5_Folgen_web.pdf)