

The Climate-Nuclear Nexus

Natural disasters and climate change-induced extreme weather events can have grave implications for nuclear security and safety

- The 9.0-magnitude earthquake and subsequent tsunami caused major damage to the Fukushima Daiichi nuclear power plant, disabling the reactor cooling systems, and it will be decades before a comprehensive impact assessment of the disaster can be made
- Wildfires that spread through Russia in the summer of 2010 posed a severe nuclear risk to the country when they were on their way to engulf key nuclear sites
- In Pakistan, an extreme weather-prone country, past natural disasters have heightened anxieties about the safety and security of Pakistan's nuclear sites and military installations
- In the UK, if climate change continues it may lead to the erosion of Britain's coast with critical implications for the safety of Britain's nuclear power stations; all but one are on the coast



Fukushima Daiichi nuclear power facility tsunami aftermath

Conflicts due to climate change can trigger the use of nuclear weapons; conversely the use of nuclear weapons can create climate change



International destabilization resulting from climate change could provoke conflicts, which, in turn, could enhance the chance of a nuclear weapon being used, could create more fertile breeding grounds for terrorism, including the nuclear kind, and could feed the ambitions among some states to acquire nuclear arms.

Recent research has revealed that even a limited regional nuclear exchange would eject so much debris into the atmosphere that it would likely cool down the planet significantly,

causing a “nuclear winter”. This would dramatically disrupt the global climate for years to come — with disastrous implications for agriculture and the food supply for much of the planet, thus threatening up to two billion people with starvation.



Nuclear energy is no solution to fossil fuel energy dependence and global warming

- Radioactive materials are released and accumulated at each stage of the nuclear fuel cycle, while errors and accidents during the generation process further contribute to the threat of radioactive contamination.
- Nuclear power is inextricably linked to nuclear weapons development. So far, about one-third of the countries using nuclear power have built nuclear weapons. This trend could increase with a further global expansion of nuclear energy.



Chernobyl disaster in 1987

- The global inventory of highly enriched uranium totals around 1600 tons, while the global stockpile of separated plutonium is about 500 tons; theoretically sufficient for up to 100,000 nuclear warheads. With increasing civilian use of nuclear power, the amount of plutonium created will increase. Recent history with Iran illustrates the difficulty in distinguishing between civilian and military nuclear ambitions, which remains a source of threat, mistrust and fear in international relations.

- Even a drastic increase in nuclear energy production would come too late for preventing climate change and lead to an enormous increase in plutonium stocks, with all its aforementioned problems.

- Although nuclear power has been heavily subsidized by governments and external costs are still not internalized into its market price, nuclear energy is not commercially competitive compared to advanced renewable energies that receive similar financial support.

- Nuclear waste disposal (from nuclear power production, nuclear weapons programs or nuclear disarmament) will remain a problem for thousands of years, and many future generations will have to bear this load without having the short-term “benefit” of the current generation.

This information is distilled from a summary of an extensive study and report on the linkages between climate change and nuclear security conducted for the World Future Council by Disarmament Working Group member Prof. Dr. Jürgen Scheffran of the University of Hamburg. The full report is available at www.worldfuturecouncil.org