



New software for modelling impacts of regional nuclear war: relevance to New Zealand

Political and social instability in various parts of the world make the risk of a regional nuclear conflict a real concern. As United States (US) President Barack Obama stated recently: “In a strange turn of history, the threat of global nuclear war has gone down, but the risk of a nuclear attack has gone up”.¹ Nine countries now have nuclear weapons and around 40 more have the capability to build them within a matter of months according to International Atomic Energy Agency (IAEA) Director General Mohamed ElBaradei.²

Previous New Zealand work explored the impacts of nuclear war on this country,^{3,4} but this focused on “full-scale” wars between the US and the then Soviet Union. Contemporary research has updated and extended earlier studies to explore the effects of a regional nuclear conflict, such as a war between India and Pakistan.⁵⁻⁷

New modelling and software animation shows how dust from even a “limited” nuclear war (i.e. one involving around 100 Hiroshima-sized nuclear bombs, representing less than 0.03% of the total explosive power of the world’s current nuclear arsenals), could spread to the atmosphere above New Zealand only 11 days after the attacks

(<http://www.nucleardarkness.org/index2.php?p=warconsequences&menu=fivemilliontonsofsmoke>).⁸ The modelling suggests that this dust would reduce the surface air temperature in New Zealand by two degrees Celsius in years one to two and reduce the length of the growing season in parts of the country.⁶ These changes could directly harm New Zealand agriculture, however this would probably be minor compared to the indirect impact arising from the social, environmental and economic devastation a nuclear conflict would cause in countries that New Zealand trades with.

Tens of millions of people would be likely to die immediately in and around the cities attacked in such a regional nuclear war. The rapid spread of atmospheric dust around the world from the fires in attacked cities would bring about: severe frosts, shortened growing seasons, reduced rainfall, monsoon failure and a substantial increase in ultraviolet radiation.^{7,9,10} The severe damage to global food production brought about by such climatic changes would have enormous health consequences among the world’s most vulnerable populations. It has been estimated that a billion people worldwide would starve to death in the resulting famines.⁹ Given the historical correlation between famine and disease, infectious disease epidemics are another possible result of such a war.⁹

While New Zealand has a good track record in terms of rejecting nuclear weaponry,¹¹ ¹² far more needs to be done to prevent such potential wars and to promote nuclear disarmament internationally. The time is ripe for New Zealand health workers, disarmament advocates, officials and politicians to greatly intensify their efforts in the nuclear disarmament field.

Individuals can join a range of disarmament non-governmental organisations or engage with their political representatives to encourage the New Zealand Government to:

- Show stronger leadership, along with a grouping of other like-minded, progressive, small and medium sized countries, in pushing for a Nuclear Weapons Convention¹³ (or at least for alternative models towards nuclear weapons abolition).
- Extend the excellent work done at the United Nations by New Zealand in calling for all nuclear weapons to be taken off high alert.
- Improve its own funding support for disarmament advocacy and research (the current estimated funding for disarmament in New Zealand is less than 1% of the defence budget).

The traditional argument against such actions is that they might negatively impact on New Zealand's chances of securing a free trade deal with the US. With such a deal already under negotiation and a current US President strongly in favour of seeking "the peace and security of a world without nuclear weapons",¹ there has never been a more opportune time for New Zealand to take the lead in pushing the nuclear disarmament agenda forward.

Competing interests: All of the authors have worked for non-profit, non-governmental organisations promoting nuclear disarmament and two (NW and AW) are members of the non-profit organisation: International Physicians for the Prevention of Nuclear War (NZ Branch).

Nick Wilson

Senior Lecturer

University of Otago, Wellington

nick.wilson@otago.ac.nz

Lyndon Burford

Political Science Researcher

Auckland

Andrew Winnington

House Officer

Auckland District Health Board

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