

DISARMAMENT AT THE NUCLEAR-CYBER NEXUS

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Offensive cyber weapons make the vulnerabilities of nuclear and other critical infrastructure vastly more acute. New Zealand is well placed to pursue effective disarmament and arms control initiatives at the nuclear-cyber nexus.

Key findings

- Offensive cyber weapons multiply and complicate the vulnerabilities of nuclear weapon command and control systems, and nuclear power and fuel processing facilities.
- New Zealand's unique history and international reputation give it the capability and responsibility to pursue disarmament initiatives to address rapidly expanding security threats at the nuclear-cyber nexus.
- New Zealand should actively pursue the widest possible ratification of the nuclear weapons prohibition treaty, and continue to promote the de-alerting of nuclear weapons. Domestically, New Zealand should legislate to ban offensive cyber capabilities and any support for them. Internationally, the country should convene a ginger group to advance legal arms control norms regarding offensive cyber weapons.

Executive summary

Nearly 30 years after the end of the Cold War, existential nuclear threats remain, and new ones are emerging at the nuclear-cyber nexus. Russia and the United States (US) maintain nuclear deterrence doctrines and deployments such that at any moment, the world is only 30 minutes away from catastrophic nuclear war. As North Korea edges towards deploying long-range, nuclear-capable missiles, confrontations between the US and North Korea are becoming more frequent and acute. The inherently dual-use nature and ubiquity of cyber technologies means that compared to nuclear weapons, offensive cyber capabilities are cheap to develop, extremely difficult to detect prior to their use, and widely available to state and non-state actors. This has created a rapidly growing risk of catastrophic terrorist or state-based attack on military or civilian nuclear facilities and critical civilian infrastructure. The emergence of offensive cyber weapons thus multiplies and complicates human, national and international security threats.

These increasingly acute security vulnerabilities demand proactive, concerted disarmament action from all states, as a vital complement to essential nonproliferation and counter-terrorism operations.



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New Zealand's vital interest in nuclear-cyber disarmament

Small states such as New Zealand have a vital interest in the maintenance of a strong, rules-based international security system. In the cyber and nuclear realms, meanwhile, all states have an interest in ensuring terrorists and governments cannot conduct successful attacks, and that interstate conflict is prevented. The New Zealand Nuclear Free Zone, Disarmament and Arms Control Act 1987 is the foundation of the country's reputation for developing constructive, principled and independent disarmament policies in pursuit of these interests. The Act seeks "to promote and encourage an active and effective contribution by New Zealand to the essential process of disarmament and international arms control." This reputation has served the country well, including by assisting its election to the UN Security Council for the 1993-94 and 2015-16 terms.

This policy brief recommends six disarmament initiatives that New Zealand should undertake—four in the nuclear sphere, and two in the cyber sphere. These are designed to help protect New Zealand's vital security interests, fulfil its international obligations, and maintain its reputation as a constructive, independent actor. First, however, to ensure that the government affords a level of priority to nuclear-cyber risks commensurate with the critical security threat they pose, it should restore the ministerial portfolio for disarmament and arms control, disestablished in 2011.¹

Recommendations

A. Nuclear weapons

New Zealand was a key leader of the humanitarian initiative which helped build the political will for negotiation of a nuclear weapons prohibition treaty. It also co-sponsored the UN resolution calling for treaty negotiations in 2017. The idea that New Zealand's nuclear free policy is "not for export" is therefore demonstrably obsolete. This paper's first recommendation is that New Zealand should actively pursue the widest possible ratification of the prohibition treaty. Since ratification may require signatories to adopt domestic legislation similar to the New Zealand Nuclear Free Zone Act, New Zealand should conduct international outreach regarding the details and functioning of the Act. This would serve the country's vital national interest, and would help to fulfil its disarmament obligations under Article VI of the Nuclear Non-Proliferation Treaty. There are strong precedents for such outreach in New Zealand's development and promotion of model legislation to help countries ratify the Cluster Munitions Convention and Arms Trade Treaty.

Over 130 non-nuclear weapon states are currently negotiating the nuclear weapon prohibition treaty, which is likely to ban, among other things, the development, testing, stockpiling, stationing, transfer and use of nuclear weapons.² The treaty will be the strongest legal challenge to nuclear weapons since the 1996 Advisory Opinion of the International Court of Justice, which has been a key touchstone for New Zealand policy. The boycott of the treaty negotiations by the nuclear weapon states and their allies shows that the treaty will have important effects. It will galvanise international political will for disarmament by further stigmatising nuclear weapons, and pave the way for future initiatives by strengthening the international legal framework of anti-nuclear weapon norms. It will also have practical military effects, further limiting nuclear deployment options, and highlighting to military operators of nuclear weapons that any use of the weapons would transgress the Nuremberg principles.



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For small states like New Zealand, credibility is an essential asset in the pursuit of the national interest. The second recommendation, therefore, is that the New Zealand government immediately begin internal deliberations on how to manage security and diplomatic relations with its “Five Eyes” intelligence gathering partners (Australia, Canada, the United Kingdom and US), once it has signed a treaty which categorically rejects their reliance on nuclear weapons as part of their security strategy. Given the strong international attention to the ban treaty, and New Zealand’s promotion of it, ignoring this issue when dealing with its Five Eyes partners would damage New Zealand’s credibility.

Third, New Zealand should resume its advocacy of the de-alerting of US and Russian nuclear weapons, an area in which it has a track record of credible advocacy and outreach.³ Since offensive cyber capabilities further weaken confidence in command and control systems,⁴ reducing the operational readiness of nuclear weapons is an essential means of reducing the risk of accidental, unintended or miscalculated nuclear launch.

Finally in the nuclear sphere, the government should address the near total lack of educational resources designed to support the teaching of nuclear (and cyber) disarmament-related issues within the national secondary curriculum. Unless there is a body of secondary graduates with a basic knowledge or interest in the field, the Peace and Disarmament Education Trust⁵ is unlikely to be able to fulfil its mandate to provide scholarships for disarmament-related tertiary studies.

B. Cyber weapons

In the cyber realm, New Zealand’s Five Eyes membership produces contrasting dynamics. In this regard, it is highly significant that the US National Security Agency (NSA) is located in the same building and has the same director as US Cyber Command—the agency responsible for offensive cyber operations. Therefore, regular collaboration with the NSA threatens to undermine New Zealand’s perceived foreign policy independence and makes the country a more likely target of cyberattack. On the other hand, New Zealand’s 75-year collaboration with the Five Eyes network means that both politically and technically, it is well placed to play a bridging role as a knowledgeable, credible advocate for cyber arms control. New Zealand should pursue two initiatives to develop this bridging role.

Domestically, New Zealand should strengthen the legal basis of its disarmament policies by legislating to ban offensive cyber weapons and any support for them. Taking inspiration from the Nuclear Free Zone Act, it should include extraterritorial jurisdiction over government agents.

Internationally, New Zealand should seek to establish a core group of countries (like the New Agenda Coalition in the nuclear sphere) to advocate for controls on offensive cyber capabilities. Through this group, New Zealand should promote awareness of the potential for mass destruction events due to the vulnerability to cyberattack of nuclear weapons command and control systems, and nuclear industrial control systems. Given the embryonic nature of international law in this field and the inherently dual use nature of cyber capabilities, the group could begin by precipitating discussion of how to define the terms “offensive cyber weapon” and “cyber disarmament.”

Conclusion

Developments in cyberspace vastly expand and complicate nuclear risks arising from the actions of state and non-state actors. New Zealand has a vital national interest in mitigating such risks, and is



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well placed to contribute meaningfully to the task through its disarmament policies. It is likely that the nuclear powers and emerging cyber powers will continue to resist disarmament initiatives at the intersection of nuclear and cyber technologies. But given the potentially catastrophic consequences for human, national and international security from emerging threats in this field, the potential security gains from the development of legally-binding, verifiable agreements far outweigh any short-term political costs to New Zealand resulting from the pursuit of proactive disarmament initiatives.

¹ Wareham, Mary, and Angela Woodward, 'Disarmament Work Could Be Wasted', Stuff.co.nz, 2012 <<http://www.stuff.co.nz/dominion-post/comment/6714781/Disarmament-work-could-be-wasted>>

² 'Draft Convention on the Prohibition of Nuclear Weapons (A/CONF.229/2017/CRP.1)', in United Nations Conference to Negotiate a Legally Binding Instrument to Prohibit Nuclear Weapons, Leading towards Their Total Elimination (New York, 2017). Other issues being considered include prohibitions on the threat of use, and funding of nuclear weapons activities.

³ Reframing Nuclear De-Alert: Decreasing the Operational Readiness of U.S. and Russian Arsenals (Yverdon-les-Bains, Switzerland: EastWest Institute, 2009). Co-funded by the New Zealand Ministry of Foreign Affairs and Trade and the Federal Department of Foreign Affairs of Switzerland.

⁴ MacAskill, Ewen, 'UK's Trident Nuclear Submarines "Vulnerable to Catastrophic Hack"', The Guardian, 1 June 2017 <<https://www.theguardian.com/uk-news/2017/jun/01/uks-trident-nuclear-submarines-vulnerable-to-catastrophic-hack-cyber-attack>>

⁵ <http://www.communitymatters.govt.nz/Funding-and-grants---Trust-and-fellowship-grants---Peace-and-Disarmament-Education-Trust>



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