THE **PLOUGHSHARES** NOLUME 43 | ISSUE 2



IMAGINE

A world without nuclear weapons

AUTONOMOUS WEAPONS What accounts for Canada's low-level engagement?

SUMMER 2022

DEEPFAKES What they are and why we should be concerned about them

SPACE THREATS Statement to the UN open-ended working group

THE ATT IN 2022 Focus on post-shipment controls

OPEN-SOURCE INTELLIGENCE How to use it to get to the truth

KOREA PEACE APPEAL How civil society can help end war "and they shall beat their swords into ploughshares, and spears into pruning hooks; nation shall not lift up sword against nation; neither shall they learn war any more." Isaiah 2:4

SUMMER 2022



From the Director's desk A security framework for nuclear abolition

,

by Cesar Jaramillo



Canada and autonomous weapons What accounts for Ottawa's low-level engagement? *by Branka Marijan*



12

Open-source intelligence How to use it to get to the truth by Wendy Stocker

Deepfakes

What they are and the dangers they pose by Branka Marijan and Alaa Allouh

14

The ATT in 2022 A focus on post-shipment controls

A focus on post-shipment controls by Kelsey Gallagher



Open-ended working group on space threats An introduction and a statement *by Jessica West*



Ploughshares at work

The latest Space Café Canada episodes, a roundup of some critical work, and two major new reports



How civil society can help to end war Help support the Korea Peace Appeal by Peter Noteboom

The Ploughshares Monitor Volume 43 | Issue 2

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Government of Canada From the Director's Desk

A security framework for nuclear abolition



Written by Cesar Jaramillo

I magine that the international community has just eliminated nuclear weapons. That an auspicious combination of genuine political will, good-faith diplomatic engagement, and effective leadership has resulted in comprehensive and credible multilateral disarmament negotiations that made irreversible nuclear abolition a reality. You wake up to the news that the last remaining warhead has been dismantled. The era of nuclear weapons is over.

Now imagine that a book is being written to describe the process that made this outcome possible. It details how states navigated all the thorny, seemingly intractable political and security challenges – the same challenges that make some states today consider nuclear weapons essential to their security.

The book includes a detailed roadmap that explains how concrete solutions to specific problems were achieved. There is a chapter on "How Israel was persuaded to give up its nuclear weapons" and another on "The conditions under which the United States removed its nuclear weapons from the territories of other NATO member states."

There is an urgent need for that kind of roadmap, however hypothetical at this point. Much of the current talk on nuclear disarmament focuses on big-picture mechanics, describing global processes and instruments. These are important efforts, no doubt. But they must be complemented by specific solutions that disentangle the concrete bilateral, regional, and international security dynamics that underpin the global nuclear order.

This recognition cannot be allowed to slide into a belief that achieving ideal international security conditions is a prerequisite for nuclear disarmament. Shifts in security arrangements can and must happen in parallel with concrete nuclear disarmament measures. A credible process leading to nuclear abolition requires attention – and demonstrable progress – on both fronts. Otherwise, it will remain a distant, ethereal objective.

The unfulfilled NPT promise

There is broad consensus that the Nuclear Non-Proliferation Treaty (NPT) has not delivered on the promise of nuclear disarmament. More than 50 years ago, it set out a legal framework for nuclear abolition, with a specific disarmament obligation under Article 6. However, nuclear-weapon states have thus far disregarded their obligation to "pursue negotiations in good faith" that lead to nuclear disarmament. Many doubt that this treaty, as currently structured and implemented, will ever lead to complete nuclear disarmament.

But even if states were willing, "good faith" would not tell them how to plot their moves to nuclear disarmament. Nor would it provide ways to respond to current security dynamics that are seen by some as obstacles to such progress.

Consider, for instance, the Action Plan that was enthusiastically adopted at the 2010 NPT Review Conference. Action 1 calls on states to "pursue policies that are fully compatible with the Treaty and the objective of achieving a world without nuclear weapons." But what does this mean in practice?

How can it be applied, say, to the security assurances that the United States gives to a Taiwan threatened by mainland China? To the pursuit of a Middle East zone free of nuclear weapons or other weapons of mass destruction? To NATO's collective security arrangements, founded on nuclear deterrence? To the nuclear sabre-rattling between India and Pakistan? To the security of South Korea, threatened by North Korea's small yet increasingly sophisticated nuclear arsenal?

A welcome advance

The Treaty on the Prohibition of Nuclear Weapons (TPNW) entered into force in January 2020. By establishing an unambiguous ban on all dimensions of nuclear weapons – including their very possession – it constitutes a formidable victory for nuclear disarmament advocates.

A product of widespread frustration with the lack of progress toward nuclear disarmament and firmly founded on humanitarian considerations, the TPNW significantly strengthens the normative regime for nuclear abolition. Its effective implementation, which includes a scenario in which nuclear-weapon states and their allies join in good faith, will benefit from early and dedicated attention to the specific security contexts and relationships that will predictably be impacted.

A mantra in global nuclear disarmament and non-proliferation conversations has long been that there is an urgent need to formulate security arrangements that do not rely on the threat or use of nuclear weapons. So, what would those alternative security arrangements look like? As former U.S. statesmen Henry Kissinger, Sam Nunn, William Perry, and George Shultz argued in a 2007 op-ed for *The Wall Street Journal*, a world without nuclear weapons will not simply be today's world minus nuclear weapons. Security dynamics that impact national positions on nuclear disarmament must be addressed. Concerted thinking on effective approaches to address each situation is sorely needed. At a minimum, a basic recognition of the need for a security framework to complement existing legal and normative frameworks for abolition is critical.

Some security issues to resolve

A nuclear alliance

The North Atlantic Treaty Organization (NATO) has an overt policy of nuclear deterrence and allows its nuclear-armed members to make weapons available to other members. Several non-nuclearweapon European states have on their territories nuclear weapons owned by the United States.

The fact that all NATO members are also States Parties to the NPT raises important questions about the extent to which they are complying with their obligations under the treaty. In Article 1, each State Party of the NPT with nuclear weapons "undertakes not to transfer to any recipient whatsoever nuclear weapons." Article 2 requires "each non-nuclear weapon State Party to the Treaty" not to receive them.

Obviously, such sharing of nuclear weapons must end in any credible process to nuclear disarmament.

Nuclear-armed states outside the NPT

Four of the nine countries currently in possession of nuclear arsenals – India, Pakistan, Israel, and North Korea – are outside the NPT framework, with no process in place to bring them into the fold. It is unlikely that these countries would be accepted into the NPT regime as nuclear-weapon states; it is just as unlikely that they would agree to join the treaty as non-nuclear-weapon states.

It is hard to see how the NPT could be a realistic vehicle to zero nuclear weapons when almost half of the states with nuclear weapons are neither bound by its obligations nor restricted by the limits it sets.

The Middle East

A resolution of the 1995 NPT Review Conference that called for "practical steps" toward a zone in the Middle East free of nuclear weapons and oth-



Protests were held outside the U.S. Embassy in Tehran after the United States withdrew from the Joint Comprehensive Plan of Action in May 2018. "Protest against United States withdrawal" by Tasnim News Agency CC BY 4.0

er weapons of mass destruction (WMDFZ) was widely considered at the time to be critical for the indefinite extension of the NPT.

After years of negligible progress on this issue, in 2018 the UN General Assembly tasked the Secretary-General with convening a long-delayed conference on the Middle East WMDFZ no later than 2019. Two sessions have been held, one in 2019, a second in 2021. But not all required parties were at the table.

While there has been broad participation by states in the region as well as four of the five permanent members of the UN Security Council (China, Russia, France, and the United Kingdom), two states known to be critical for the success of the process have refused to participate and missed both sessions: Israel and the United States.

The achievement of a Mideast zone free of weapons of mass destruction is a necessary and integral part of a process to free the world of nuclear weapons. Despite welcome efforts and good intentions, the absence of key players makes it a distant prospect.

Iran

Requiring separate analysis is the question of how to limit Iran's ability to develop a nuclear weapons program.

The joint comprehensive plan of action

(JCPOA) agreed to by Iran and the P5+1 (permanent members of the UN Security Council plus Germany) was a significant step in achieving a diplomatic solution to the volatile stalemate over Iran's purported ambition to develop nuclear weapons. Although most experts believed that the agreement was robust and that Iran was complying with the terms, the United States withdrew unilaterally in 2018 and reinstated sanctions against Iran. The Iranian government then walked away from its own commitments under the deal.

With the unravelling of the JCPOA, the Iranian nuclear question remains unresolved.

North Korea

In recent years, North Korea has made very significant, well-documented progress in its nuclear weapons program, including advances in warheads and delivery systems that would enable an attack on the continental United States. It is too late to talk about "preventing" North Korea from becoming a nuclear-weapon state.

At the same time, it is unlikely that the international community's current approach – sanctions + sabre rattling – will put a halt to North Korea's nuclear ambitions in the foreseeable future. No credible plan is in motion that can reasonably be expected to result in a denuclearized Korean peninsula.

Still a rocky path ahead

The abolition of nuclear weapons requires disarmament provisions, verification mechanisms, and a timeline for implementation. These mechanics do not exist in a vacuum and cannot be operationalized without due consideration of relevant security dynamics and contexts, many of which point to issues that require effective resolution.

While it is beneficial, indeed constructive, for the nuclear abolition enterprise to focus on progress achieved, it is also critical to pay attention to areas in which progress has not been made.

Some obstacles, unresolved issues, and security relationships are so entrenched that they threaten to derail nuclear disarmament efforts. They serve to compound the magnitude and complexity of the nuclear disarmament problem and so must be confronted and effectively addressed. To succeed in this, imagination is certainly needed. \Box

Cesar Jaramillo is the Executive Director of Project Ploughshares. He can be reached at cjaramillo@ploughshares.ca.



In early May, the Group of 78 sponsored a webinar "What Ukraine tells us about nuclear deterrence and common security." Participating were moderator Peggy Mason, President of the Rideau Institute of International Affairs; Robin Collins of the World Federalist Movement – Canada; and Cesar Jaramillo, Executive Director of Project Ploughshares.

The three common security proponents questioned NATO doctrine, spending, and planning. As Peggy Mason noted, NATO has been expanding, coming close to Russia's borders. And the United States alone spends much more on weapons than Russia does. Cesar contended that we can and should feel outrage over Russia's methods, but must still recognize Russia's legitimate grievances and concerns.

Cesar's greatest concern was that nuclear weapons would be used. The old rules of use no longer seem to apply. While NATO has tempered its response to the invasion in deference to Russia's nuclear capability, Russia has openly threatened to use nuclear weapons, even though nuclear retaliation is a NATO option.

Cesar envisioned two futures. In one, the international community pivoted to a posture of common/shared security based on diplomacy and the rule of law. In the other, East-West relations were further militarized. He believed that the opportunity should be used to embrace the first, but admitted that the world seemed to be heading in the other direction.

All agreed that a diplomatic solution was needed, but that no easy fix was likely. What they couldn't see was how rearmament could reduce the nuclear – or indeed the conventional – threat. And yet more and more weapons are pouring into a volatile region, with possibly calamitous consequences.

The webinar can be found on YouTube.

No Canadian leadership on autonomous weapons



Written by Branka Marijan

For some time, Canada's silence has been a standard feature of international discussions on autonomous weapons. True to form, Canada remained quiet at the April 26-27 informal, virtual sessions on lethal autonomous weapons systems hosted by Brazil, the current chair of the United Nations Convention on Certain Conventional Weapons (CCW). While there was some Canadian representation, it did not appear that Canadian diplomats were present for most of the discussion. What accounts for Canada's persistent low-level engagement on this important issue?

Wait and see

Perhaps earlier setbacks explain Canada's waitand-see attitude this past April. During the week of March 7, states met to restart CCW discussions, but Russia argued that its diplomats were being unfairly impacted by restrictions on air travel imposed on Russians. Following two days of arguments over procedures, the talks moved into informal mode in an attempt to keep the process moving forward, with sessions scheduled for April, May, and June.

Other states chose to engage. The United States and South Korea were among the states that presented remarks, as did representatives from civil society. New Zealand drew on its delegate's expertise in arms control and disarmament to make important points on how to regulate the uses of technology rather than the technology itself.

In contrast, Canada stuck to the pattern established over the last several years. During this time, Canada made a few vague statements on the applicability of international humanitarian law to emerging technologies and the need to maintain human responsibility. These statements seldom exploited Canada's expertise in technologies such as artificial intelligence (AI) and in international law. It seemed that Canada was not prepared to substantially engage in discussions; statements, if given at all, avoided interactive responses to contributions from other states.

Canada's Department of National Defence (DND) did send a few experts to the last in-person CCW meetings held before the COVID 19 pandemic, but they acted mainly as observers. Even when talks moved to a hybrid (in-person + virtual) mode, with countries including Austria and Germany hosting virtual dialogues on emerging military technologies, Canada remained largely unengaged. The virtual format, which allows for a much wider engagement of expert communities around the world, could and should have

3/3/22 CENTRE FOR INTERNATIONAL GOVERNANCE INNOVATION THE EFFECTS OF CYBERWARFARE By Branka Marijan In early March, Ploughshares Senior Researcher Dr. Branka Marijan published an opinion piece on the Centre for International Governance Innovation website. "Guerrilla cyberwar can have unintended consequences" reveals a dimension of the conflict between Ukraine and Russia that is The troops are hackers. not often in the news, but deserves attention. In cyberwarfare, "the troops are hackers," whose actions have realworld consequences. And these effects can extend well beyond the countries directly involved. Malware attacks, possibly originating in Russia, have already affected NATO members Latvia and Lithuania. While the attack on NATO member states was likely deliberate, unintended consequences are also possible and a significant concern. A major attack could have global impact and even result in blowback, in which the attacker's own infrastructure is damaged. If there is no restraint in such cyber operations, Branka argues, the result could be "tremendously destabilizing for the global digital commons and, indeed, the international community."

been used by the Canadian government to build capacity on this issue among its diplomats and policymakers.

The lack of participation in virtual and informal discussions and meetings also represents a missed opportunity for Canada to better understand how the limitations of the CCW imposed by its requirement for consensus can be overcome. Some of the more powerful states at the CCW have taken consensus to mean unanimity and have stalled progress in the forum. As some states and civil society actors suggest other forums for the discussions on autonomous weapons, it is important to fully understand what can be achieved at the CCW and how progress can be made elsewhere. Its lack of involvement has essentially left Canada on the sidelines.

An ambiguous stand on autonomous weapons

The blame largely falls on the lack of consistent political will. In 2019, Canadian foreign affairs minister François-Philippe Champagne was given a mandate to "advance international efforts to ban the development and use of fully autonomous weapons systems." This mandate was passed on to the succeeding minister, Marc Garneau, but appears to have been dropped for the current minister, Mélanie Joly. No matter, because the mandate was never implemented.

This past March, Canada joined Australia, Japan, South Korea, the United Kingdom, and the United States in proposing a set of "Principles and Good Practices on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems." But the principles appear to be voluntary and the concept of "good practices" strongly suggests that the development and use of autonomous weapons is seen as a done deal. It is notable (and perhaps disheartening) that Canada signed on to this proposal rather than one supported by 23 countries, including Austria, Ireland, and Switzerland, which called for limits and other regulations on certain types of weapons systems.

Canada's current ambiguous position on autonomous weapons can likely be explained, at least in part, by the stand taken by key allies, particularly the United States, which wants to see the establishment of a flexible code of conduct even as it continues to produce weapons systems with greater autonomy.

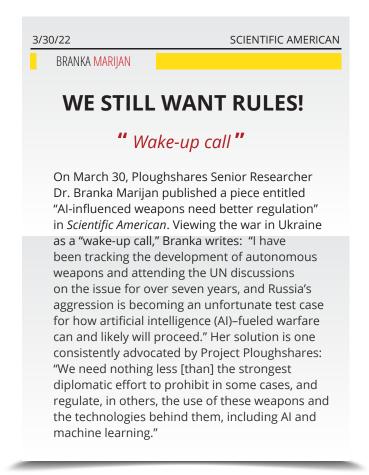
It also appears that Global Affairs Canada and DND have different perspectives on this subject. DND is perhaps keener to keep its options open on the future use of emerging technologies. Recent statements by U.S. Air Force General Glen VanHerck, the head of NORTHCOM and NORAD, clearly express a desire to employ new and developing AI capabilities. As a partner in NORAD, Canada will pay attention to such pronouncements.

But it is still striking that Canada, a leader in such civilian forums on AI as the Global Partnership on Artificial Intelligence, does not appear to have the political will to take a meaningful role in shaping the regulations of military applications of AI. According to the 2021 Global AI Index from Tortoise media, Canada ranked fourth in the world in terms of level of investment, innovation, and implementation of AI, behind only the United States, China, and the United Kingdom.

A diplomatic strategy?

Ultimately, it is hard to explain why Canada seems unwilling to let its diplomats and subject experts truly engage in interactive discussions that could reveal points at which states converge on autonomous systems. This lack of engagement has been noticed by international and domestic members of civil society. The most commonly expressed sentiment is that Canada is not pulling its weight in disarmament and arms control forums.

Perhaps Canada is purposefully playing below its skill level, acting in the background, soon to emerge with key diplomatic moves. If so, we can only hope that Canada reveals its strategy soon. \Box



Branka Marijan is a Senior Researcher at Project Ploughshares. She is currently on leave.

How to use open-source intelligence to get to the truth



Written by Wendy Stocker

n April 6, the Peace and Conflict Studies Association of Canada (PACS-Can) presented a forum on open-source intelligence (OSINT) that featured Ploughshares Researcher Kelsey Gallagher, with Ploughshares Senior Researcher Dr. Branka Marijan as moderator. Some days later, I saw a feature on the same topic on the PBS NewsHour. Apparently, OSINT not only serves as a source for news and other media, but is itself considered newsworthy these days.

The term "open-source intelligence" refers to data that is accessible to everyone. At one time, this would mean sources that could be readily found in public and university libraries, in newspapers, books, journals, government documents, and curated collections. Mostly in hard copy, with some microfilm/fiche. But with the rise of the Internet and the ubiquity of social media, OSINT now often refers to posts of all sorts from "citizen journalists" – indeed, from anyone with an account and a device. Some, but not all, of this information is valuable and is becoming more and more critical for modern researchers.

Trusting in partners

One of Kelsey's primary responsibilities at Project Ploughshares is to track exports of Canadian military goods. In some cases, this includes learning how the goods are used after export and if such use matches up with the intentions expressed by the importing state. By assembling data from various sources, he might learn, for example, that a piece of equipment, such as a sensor, which was exported for use by one country is being used by another – an example of diversion. Some of this information might come from governments and manufacturers, but a lot is from social media.

In the end, Kelsey might be able to claim that certain weapons are being used inappropriately. In September 2020, for example, Ploughshares published a major report authored by Kelsey that indicated that the transfer of Canadian-made L3Harris WESCAM surveillance and targeting sensors to Turkey "poses a substantial risk of facilitating human suffering, including violations of human rights and international humanitarian law." The report garnered a lot of media attention and was at least partially responsible for a federal government investigation into the export of these sensors to Turkey. (The report can be found on the Ploughshares website. Look for Killer Optics: Exports of WESCAM sensors to Turkey – a litmus test of Canada's compliance with the Arms Trade Treaty.)

But how do researchers and analysts reach a sufficient level of certainty about the information found on social media platforms like Facebook, Twitter, or Instagram? Even accredited journalists and professional academics, whose work goes through a vetting process, can be subject to political or other pressures that lead to biased or even false content. The bar is much lower for information posted by observers and enthusiasts, which can be accidentally or intentionally inaccurate or just plain false.

Kelsey knows that he can trust the process of certain sources, with whom he has had extensive contact over time. Canadian researcher Anthony Fenton, a PhD candidate at York University in Toronto, is one such contact; he has been critical in assembling information on how the Saudis use Canadian weapons. (See Q&A: Mining social media for peace on the Ploughshares website.)

In the PACS-Can discussion, Kelsey spoke highly of the Netherlands-based group Bellingcat, "an independent international collective of researchers, investigators and citizen journalists using open source and social media investigation." It not only investigates a range of subjects, but offers training in how to do the type of work they do. He also spoke of PAX, another group based in the Netherlands. Both are trusted partners.

Not all useful sources share our focus on building peace. Some are weapons enthusiasts who track certain weapons from source to destination. They visit black markets, see what's on offer, and then make that information available for a fee. On occasion, Canadian-made weapons, including firearms such as carbines, are found, providing evidence of diversion that wouldn't otherwise be available through conventional channels.

Verifying data

Ultimately, however, Kelsey makes sure to do his own due diligence before accepting information as fact. During the forum, he offered some tips on how to do this:

- Make certain that more than one source can confirm evidence that might be suspect.
- Seek out video evidence rather than photographs, which are easy to fake.
- Do your homework so that you are less likely to be tricked by fakes or false identifications. Learn all you can about the subject of your investigation a particular weapon system, for example. Know what similar systems look like and know how to distinguish key differences.
- Learn enough about relevant contexts to judge the likelihood that the data under examination is accurate.

Kelsey referred to images published by Yemeni and Turkish government agencies that show their armed forces using identifiable weapons. He saw no reason to discount such sources. Random images, however, could easily be fakes.

Ultimately, as Kelsey has noted, "open-source imagery is only one aspect of verifying weapons exports. It is frequently used in conjunction with other data." For example, a Canadian government report on exports could indicate that military goods have been exported to a state that becomes involved in an armed conflict. Subsequently, Kelsey could find images of what appear to be Canadian weapons taken at that conflict.

The ethics of OSINT

The PACS-Can forum also discussed the ethics of OSINT, particularly the publication of images that will be seen as personal by some viewers. Many respected organizations, including Amnesty International and the United Nations, use opensource images. The basic operating principle in such use is to do no harm. But who gets to determine if an image causes harm?

In most cases, no one has given permission to use the images of the dead and injured. And what about the relatives of those pictured? Would anyone want to learn that a loved one had been killed or injured by stumbling across an image on a website?

Another, different case involves photographs of prisoners of war, even those who are well treated. It is never permissible to publish such photos.

Proceeding with caution

The sheer volume of open-source material is a major concern. At one point, Project Ploughshares considered using artificial intelligence to keep track of shipments of armoured vehicles. But it turned out to be both difficult and expensive to train an algorithm to detect a particular armoured vehicle, which can look a lot like a different armoured vehicle or even a tank. The result was a lot of false positives and probably just as much work for humans checking on the work done by the machine.

There is no central OSINT repository. Most researchers are working on fairly narrow topics, like cluster munitions in Ukraine. And so a lot of crosschecking must still be done.

It is certain that Kelsey and other researchers will continue to use OSINT. But it is critical that all such use be done with due concern for ethical considerations and respect for truth. This means keeping up with the tech, for sure, but it also means holding fast to basic principles and integrity. □

DEEPFAKES

Research: Branka Marijan and Alaa Allouh Design: Tasneem Jamal

WHAT ARE DEEPFAKES?

Deepfakes are synthetic media, with a specific intent to deceive the audience into believing that the image or video presented is an authentic image or likeness of an individual, group, or event. Deepfake technology is used to create falsified content, replacing or synthesizing faces and speech to digitally imitate an action that a person did not commit.

According to the startup Deeptrace, the number of deepfakes on the web increased 330% from October 2019 to June 2020.



WHAT ARE SOME CONCERNS ABOUT DEEPFAKE TECHNOLOGY?

A key concern is the use of deepfakes in misinformation campaigns to influence elections. But the technology could also be used to erode public trust, target particular individuals and communities, and contribute to crises in conflict-affected regions. Even the possibility of the technology has made individuals distrust legitimate content. HOW MIT ha Howey



During the 2020 U.S. presidential election, RepresentUs, an anticorruption organization, released ads—one of which featured North Korea's leader Kim Jong-un—using deepfake technology to illustrate how easily misinformation can be used to damage the democratic process. "Dictators-Kim Jong-Un" by RepresentUs is licensed under CC BY 3.0. Pay attention glare? Does Once again physics of I

Wilfrid Laurier University student Alaa Allouh was a Project Ploughshares intern in Winter 2022. Alaa is pursuing a master's degree in Religion, Culture, and Global Justice.

HOW DO DEEPFAKES WORK?

The term "deepfake" derives from deep learning, which is a form of artificial intelligence that aims to mimic the human brain. Deep learning algorithms, which teach themselves how to solve problems when given large sets of data, are used to swap faces in video and digital content to make realistic-looking fake media.

The more data that is input, the more accurate the output. This is why a lot of early deepfakes featured politicians and celebrities. There are a lot of videos of such people available.

Nowadays, software tools—such as FakeApp, DFaker, faceswap-GAN, faceswap, and DeepFaceLab—are easily accessible but still require skill, resources, and time.



CAN YOU DETECT A DEEPFAKE?

is created a website to help people spot deepfakes. There is no single telltale sign to detect a deepfake. Yer, the website provides some tips that can help.

Pay attention to the face. High-end deepfake manipulations are almost always facial transformations.

Pay attention to the cheeks and forehead. Does the skin appear too smooth or too wrinkly? Is the agedness of the skin similar to the agedness of the hair and eyes? Deepfakes are often incongruent on some dimensions.

on to the glasses. Is there any glare? Is there too much s the angle of the glare change when the person moves? , deepfakes often fail to fully represent the natural ighting.

Pay attention to the size and colour of the lips. Do the size and colour match the rest of the person's face?

Pay attention to facial moles. Does the mole look real?



Pay attention to the eyes and eyebrows. Do shadows appear in places that you would expect? Deepfakes often fail to fully represent the natural physics of a scene.

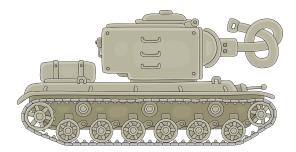
Pay attention to blinking. Does the person blink enough or too much?

Pay attention to the facial hair or lack thereof. Does this facial hair look real? Deepfakes might add or remove a mustache, sideburns, or beard. But deepfakes often fail to make facial hair transformations fully natural.

Source: detectfakes.media.mit.edu

The ATT in 2022

Focus on postshipment controls



Written by Kelsey Gallagher

The eighth Conference of States Parties to the Arms Trade Treaty (CSP8) will be held this August. The theme chosen by conference president Germany is post-shipment controls and on-site verification. These instruments provide innovative ways to protect against the diversion of exported weapons systems once they leave the exporter's hands.

Canadian officials are currently assessing options on how to integrate post-shipment controls into Canada's regulatory regime. Such controls would be welcome, especially in light of recent evidence that Canadian arms are being diverted.

Diversion and its controls defined

Prior to the transfer of a weapon system, a party seeking to import arms is required to first provide the exporting state with the identity of the authorized user ("end-user") of those weapons, and the use to which these weapons will be put ("enduse"). Diversion occurs when those weapons come to be used by a different, unauthorized end-user, or for a use that was not declared before the transfer occurred. Diversion can happen at any point in the transfer cycle of a weapon system, and can be deliberate (e.g., illicit resale) or unintended (e.g., theft or loss in combat).

According to Article 11 (1) of the Arms Trade Treaty (ATT), "Each State Party involved in the transfer of conventional arms covered under Article 2 (1) shall take measures to prevent their diversion." Even though the majority of the world's nations are now States Parties to the ATT, the diversion of conventional weapons systems remains a major threat to peace and stability in many parts of the world.

Post-shipment controls are employed by an exporting state after weapons have been delivered to the authorized user. The intent is to detect and disrupt potential diversion. Such controls increase transparency and reinforce the accountability of the importing party or state. They also serve to build trust between exporters and importers, and should not be seen only as a tool to root out those intentionally abusing end-use assurances.

Post-shipment controls can include a number of tools, including additional assurances such as postdelivery verifications that confirm that weapons have been received by legitimate end-users. A particularly useful measure of post-shipment controls is that of on-site verification, when officials from the exporting state physically check on arms transfers to ensure that diversion has not taken place.

While the ATT does not explicitly mention or require post-shipment controls, they are an effective way to satisfy the treaty's overall objectives.

The diversion of Canadian arms

As Canada's arms exports have grown in recent years, so have instances of diversion of those weapons.

Since the beginning of the war in Yemen, Saudi Arabia has become the second largest customer for Canadian arms, second only to the United States. And since the beginning of that war, Saudi Arabia has diverted Canadian-made light armoured vehicles to Yemeni forces active in the conflict. Although Canadian civil society, academics, and media have consistently drawn attention to these instances of diversion, there has been little public response from the Canadian government.

Canadian-made sniper rifles have also been diverted to groups engaged in the Yemen war, apparently both deliberately and as the result of battlefield capture.

Turkey has diverted Canadian-made uncrewed aerial vehicle (UAV) targeting and surveillance technology to conflict zones in Libya and Azerbaijan, and likely to a number of other countries. The Turkish government has diverted weapons quite openly, showing little initial concern for Canadian intervention.

Kurdish groups have also diverted some of the Canadian-made carbines supplied to them as partners in anti-ISIS operations to the black market in Iraq. From there these weapons have spread across the region.

These instances have come to light, but there are almost certainly other cases that are not yet generally known. The systematic application of post-shipment control measures can reduce instances of diversion, if the political will exists to implement them.

Current practices

While standards and best practices for implementing post-shipment controls are increasingly recognized in the arms control community, measures differ from state to state. ATT States Parties Switzerland and Germany are generally seen to have the most comprehensive practices. According to a 2020 study by the Stockholm International Peace Research Institute, a number of other European states have either implemented some post-shipment control measures or are in the process of doing so.

Under the Arms Export Control Act, the United States has a longstanding program of on-site inspections to verify how U.S. defence materials are being used by foreign actors. The Blue Lantern program controls commercial transactions, while the Golden Sentry program monitors government-togovernment transfers, also known as military aid.

Canada's position

Canada has not yet systematically implemented post-shipment control measures. Allegations of diversion seem to generate reactive and ad hoc responses. Current measures include consultations with the recipient country, with relevant Canadian diplomatic staff, and with officials from the Department of National Defence. In some instances the manufacturer of the goods in question may also be consulted. Global Affairs Canada reports that it has also utilized delivery verification certificates.

Although some of these measures can in part be defined as post-shipment controls, there is no clearly established trigger point or process. Instead, they largely rely on an informal buy-in from a range of actors.

In late 2020 and 2021, the parliamentary Standing Committee on Foreign Affairs and International Development (FAAE) investigated the diversion of Canadian-made UAV sensor technology from Turkey to its ally Azerbaijan, which then used this technology in the 2020 conflict in Nagorno-Karabakh. The FAAE's culminating

Tracking Canadian military aid to Ukraine

When Canada began sending military aid to Ukraine after the Russian invasion, Ploughshares Researcher Kelsey Gallagher began to analyze the military exports from Canada to Ukraine that have been publicly reported for 2022. The list is being updated as new government announcements about such transfers are released.

Items announced so far include bullet-proof vests, night-vision goggles, binoculars, and gas masks, as well as various firearms, ammunition, and light anti-armour weapons.

Search "Canadian military aid to Ukraine in 2022" on the Project Ploughshares website for updates.



study, released in June 2021, recommended, inter alia, that the Canadian government "explore options for an effective and feasible post-shipment verification system," echoing recommendations from representatives of civil society organizations, including Project Ploughshares, who testified during the investigation.

In the spring of 2021, the Canadian government disseminated a questionnaire to ATT States Parties and other stakeholders to gather information on best practices for post-shipment controls that would later be presented in a working paper. This past April, Germany became a collaborator on the working paper, which has been described as "a toolbox for the implementation of postshipment controls."

Hurdles to effective implementation

Exercising post-shipment controls can be a politically and diplomatically sensitive venture. For a variety of reasons, including national security, importing states might not be willing, initially, to allow on-site inspections by foreign officials. These barriers to effective post-shipment controls must be acknowledged.

Post-shipment controls have typically focused on monitoring the end-use compliance of full systems, such as firearms, rather than parts and components. Both Germany and Switzerland impose post-shipment controls only on full systems. Canada, however, exports large numbers of components and subcomponents. It is not yet entirely clear how to apply post-shipment controls in such cases.

Finally, there are also legislative constraints to such controls. For instance, Canada's Export and Import Permits Act (EIPA) does not currently authorize Canadian officials to undertake on-site post-shipment verification, which is an extraterritorial practice.

Recommendations

• Canada will need to amend the EIPA to allow for post-shipment controls. Spain has recently made similar changes to its national controls and can serve as a model.

- Moving forward, the Canadian government should ensure that Canadian export permits all include a post-shipment control clause. If and when diversion is suspected, Canadian officials would reserve the right to determine the veracity of such claims in a systematic process that could include on-site verification. If an investigation determines that diversion has taken place, the offending state becomes ineligible for further export authorizations until the risk of subsequent diversion is mitigated. If mitigation is not possible, then exports to that country must cease.
- Canadian officials should use all channels of information to learn about the potential diversion of weapons systems, including reporting from civil society organizations and media.
- Data resulting from the operation of postshipment controls, including on-site visits, should be publicly reported in Canada's annual Report on Military Exports. This information will not only build transparency, but will also serve as an example to other ATT States Parties currently in the process of implementing such post-shipment controls.
- All instances of diversion should also be fed into the Diversion Information Exchange Forum, which is scheduled to hold its inaugural meeting this August during CSP8.

Getting off the floor

The ATT sets out basic obligations for States Parties and then encourages them to exceed those obligations. The treaty is to be seen as a floor, not a ceiling. Post-shipment controls are a step off the floor.

Canada would do well to systematically integrate post-shipment controls into its national export regime. This would not only decrease the likelihood that further Canadian arms will be diverted abroad, but also serve as a positive example to other States Parties to the treaty. □

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Action begins at the Open-Ended Working Group on Threats to Space

Written by Jessica West

A group photo from the first meeting of the Open-Ended Working Group on Space Threats, held in Geneva, May 2022.

Whether or not we realize it, we all depend on capabilities in outer space. They provide data and support services essential for the running of hospitals and other medical services, electricity grids, banking, most communication media including the Internet, and transportation operations that bring food and other goods to our local communities.

But our ability to continue to access these services is not assured. The entire structure is threatened by new technology and a deteriorating international security environment, in which more and more states see space as an appealing target for disruption and even violence. The threat to our way of life could be on the scale of climate change, with repercussions that could be felt for generations.

To prevent such a catastrophe, the United Nations Open-Ended Working Group on Space Threats met for the first time in Geneva from May 9-13. Bringing together more than 50 state delegations as well as representatives from civil society, these discussions aim to identify and develop a shared understanding of the threats posed by state behaviours in outer space and to recommend norms, principles, and rules of behaviour that foster greater stability and security for all.

Key to this effort is a shared understanding. Arms Control in Outer Space: Status, Timeline, and Analysis, a major report recently published by Project Ploughshares (see more on p. 22), details competing approaches to deal with gaps in governance that have long threatened the security of this domain. The current working group is one more attempt.

Success depends on meeting the core interests of all states. Some favour efforts to regularize and make transparent military behaviours that might lead to accidents, misunderstanding, and escalating conflict dynamics. Others prefer a ban on activities and capabilities linked to weapons and warfighting. We can make progress on both goals.

The following statement, which I delivered, shows how a focus on norms of behaviour in outer space can complement an arms control process that is focused on hardware, capabilities, and law. \Box

Note: Project Ploughshares also made a submission to the OEWG in advance of the meetings. Developing Norms for Enhanced Security in Outer Space: Process and Priorities can be found on the Project Ploughshares website.

Statement to the Open-ended Working Group on Reducing Space Threats

Delivered by Jessica West

am here on behalf of both Project Ploughshares – a Canadian peace and arms control research institute – and the Canadian Pugwash Group, which is committed to the abolition of weapons of mass destruction and has a long tradition of "dialogue-across-divides." Both of these organizations have long supported efforts to develop formal arms control mechanisms for outer space. We have enthusiastically sought to support the process to develop principles, rules, and norms of responsible behaviour as a concrete contribution to the prevention of an arms race in outer space, or PAROS.

The pursuit of this goal requires complementary approaches founded on common interests. Let me highlight three points of complementarity.

Norms and arms control

Norms of responsible behaviour are central to arms control and conflict prevention.

The word "taboo" has been raised several times this week. Taboos are often at the heart of arms control agreements, including the Chemical Weapons Convention, and inform the continued restraint against the use of nuclear weapons. Taboos and norms are closely related as both refer to limits on acceptable behaviour that must not be crossed. Successful arms control in space demands that such limits are properly identified and agreed upon.

Concerning PAROS, we must keep in mind that arms racing is not just about weapons; it is fundamentally a behaviour. For this reason, preventing an arms race requires attention not only to weapons capabilities, but to the behaviours that drive the competitive pursuit of such weapons.

Norms can help to mitigate this behaviour by building trust and common understanding and interpretations of activities among diverse actors, reducing the opportunity for misperception and unintentional escalation of conflict, which underlay the pursuit of weapons in the first place.

Norms can also help to limit potentially harmful activities and promote behaviours that contribute to long-term and mutual security in outer space. An example of this would be a norm against activities that cause space debris through the deliberate destruction of objects in space.

Norms of behaviour tied to capabilities

When we talk about behaviours in space, we are very much talking about capabilities and the rules that determine how they are used. Likewise, it is possible to identify capabilities, and to regulate them, based on their uses and the effects of that use. This is a common approach to arms control. Consider once again the Chemical Weapons Convention, which bans the use of any chemical as a weapon; or the Environmental Modification Convention, which bans the use of capabilities that have a widespread, long-lasting, or severe effects on the natural environment. It is nonetheless important to recognize that while a behavioural approach involves capabilities, it does not impose restrictions on their development for peaceful purposes.

The final point of complementarity: Norms and international law

Norms of behaviour, as well as the shared values that underpin them, are embedded in the international legal framework.

Adopting a common commitment to the application of international law in outer space, including international humanitarian law, is a way to strengthen law while aiding the development of norms, including those related to restrictions on weapons. For example, the application of IHL to emerging technology related to artificial intelligence is being used to advocate restrictions on the development of autonomous weapons. In articulating many of the shared values and principles that flow from international law, the working group has created a strong basis for moving forward with the development of norms.

These principles include:

- the peaceful use of outer space for the benefit of all
- operating with due regard for the interests of other states
- international consultation in the event of potential harmful interference
- avoiding harmful contamination of the environment
- protecting civilians and civilian uses of outer space.

Additional progress might be facilitated by developing common definitions of what these principles mean, followed by clear concepts of what they look like in practice.

None of this is possible without the development and implementation of transparency and confidence-building measures. Not only are lack of transparency and poor communication regarding space activities a core driver of insecurity in outer space, but the development and nurturing of norms require mechanisms to propagate, practise, and promote desired behaviour.

Examples of measures that could both enhance security and common understanding in space, and nurture responsible behaviours include mechanisms and processes for

- pre-notifications
- more detailed registration and disclosure practices
- information exchange
- orbital data sharing
- consultations
- direct lines of communication.

For more detailed information on many of these points, I urge you to read the recent paper published by UNIDIR that I co-wrote with Almudena Azcárate Ortega.

Above all, I would be seech you to choose progress over stalemate. If we continue to do nothing on this topic, the outcome won't be nothing. It will be bad behaviour, bad norms, and quite possibly conflict, whether we want it or not. \Box

The OEWG on Reducing Space Threats met in Geneva, Switzerland from May 9-13. The text of this statement has been edited slightly.

Jessica West is a Senior Researcher at Project Ploughshares. She can be reached at jwest@ploughshares.ca.

New UNIDIR report

Recently, the United Nations Institute for Disarmament Research published *Space Dossier 7—Norms for Outer Space:* A Small Step or a Giant Leap for Policymaking? co-authored by Ploughshares Senior Researcher Dr. Jessica West and UNIDIR Associate Researcher Almudena Azcárate Ortega. Jessica has studied the role that norms can and do play in outer space security for some time and is becoming recognized as an expert on this subject.

The UNIDIR report notes that, in the absence of negotiated, binding agreements, "norms can be a useful tool to build trust and to create common understandings among the members of the international community that carry out activities in outer space or otherwise benefit from the services made available by space technology. Norms can also help to curb potentially harmful activities and to promote behaviours that mitigate the risk of conflict due to misperceptions and unintended escalation."

Still, norms "should not be seen as the end goal, but rather as a starting point— the beginning of a renewed international commitment" to prevent an arms race and warfare in outer space.

UNIDIR "generates knowledge and promotes dialogue and action on disarmament and security." It helps the international community "develop the practical, innovative ideas needed to find solutions to critical security problems."

RECENT EPISODES OF SPACE CAFÉ CANADA

IS ARMS CONTROL ROCKET SCIENCE?

On February 25, Ploughshares Senior Researcher Dr. Jessica West met with Paul Meyer, Canada's Ambassador for Disarmament from 2003 to 2007, founding member of the Outer Space Institute, and currently a Fellow in International Security at Simon Fraser University.

As Canada's representative to the Conference on Disarmament and the CD's Special Coordinator for its agenda item Prevention of an Arms Race in Outer Space (PAROS) in 2007, Paul Meyer acknowledged deadlock at the CD, but remained committed to a "model for international security cooperation [that] has served us very well."



Despite the Russian invasion of Ukraine, Paul believed that "without diplomacy there is no off ramp for military escalation and war and this role is relevant to the space security case as well....I come back to the clear common interest of all space users, among which Russia figures significantly, in trying to minimize threats to their space systems, on which Russia is just as dependent as anyone else."

He wanted middle powers, including Canada, to do more "to rein in great power rivalry in space." He was "pleased to see Canada renewing its long-standing proposals to ban destructive ASAT [anti-satellite] testing in space." And he thought that "it would be helpful for Canada to also begin the necessary diplomatic work to generate a coalition to support it, and to put the proposal in an appropriate forum. This issue needs a champion."

COUNTDOWN TO LIFTOFF: THE FIRST CANADIAN SPACEPORT UNDER DEVELOPMENT

On April 29, Jessica met with Stephen Matier, President and CEO of Maritime Launch Services and Spaceport Nova Scotia, Canada's first commercial space launch complex.

Unlike most other spaceports around the world, Spaceport Nova Scotia will be fully commercial when it begins regular launches, possibly as soon as 2024. It will send medium-sized launch vehicles to low Earth orbit (LEO), where commercial activity is now dominant. Commercial access to LEO is driving innovation in space, including synthetic aperture radar for 24-hour Earth imaging, broadband internet, and the capacity to detect and monitor methane leaks from space.

MLS claims that it is making the spaceport and its operations as sustainable as possible, by attempting to make the site carbon neutral, meeting environmental regulations, and planning for safety, but space launch and the use of rocket fuel are not free of risk. Members of the local community remain concerned about possible safety and environmental impacts.

MLS has plans to mitigate space debris. It is working with NanoRacks on a "mission extension kit" that will repurpose the upper stage of the rocket rather than leave it in orbit as junk. MLS is also working with another customer to be able to remove and replace dead satellites in orbit with new ones, rather than leaving them there as junk for decades.

What is clear from this discussion is that the commercial sector must be included in any serious analysis of space security.

Find complete videos on YouTube.

PLOUGHSHARES OUTREACH

A roundup of some of the critical work Ploughshares researchers have been up to in the past few months



A PLOUGHSHARES FORUM

On March 3, Project Ploughshares hosted a forum in which guests were invited to discuss "Russia's invasion of Ukraine: Nuclear risks and humanitarian implications," with Ploughshares staff and other experts. To encourage an open and frank exchange of views, the event was not recorded.

This well-attended and lively event revealed an appetite for such discussions. Stay tuned for notices of future forums.

CANADIAN TECH IN UKRAINE

In "Canadian air-strike tech appears to be playing important role in Ukraine's fight against Russia," published in *The Globe and Mail* on March 2, author Steven Chase presents evidence that Canadian tech is being used in "Ukrainianoperated drones attacking Russian forces."

A major source of information was Ploughshares Researcher Kelsey Gallagher, who has evidence that "Turkish drones being employed in Ukraine are outfitted with Wescam sensors." According to Kelsey, "footage released of air strikes carried out by Ukrainian Bayraktar TB2s include the graphical interface associated with Wescam surveillance and targeting sensors. This is Canadian hardware."

ANALYZING CANADIAN DEFENCE SPENDING

In April, Senior Researcher Dr. Branka Marijan contributed to a CBC Radio *Cross-Country Checkup* analysis of the federal budget. With so much NATO concern about Ukraine, it was no surprise that defence spending increased, although not enough to suit some. While Branka wasn't surprised by the increase, she was concerned about a lack of investment in peacebuilding, diplomacy, and humanitarian support. She wanted to see more emphasis placed on soft skills, including the ability to build consensus and support refugees –from Ukraine and elsewhere. "This is something that's going to be relevant beyond this conflict."

NEW MARKETS FOR CANADIAN ARMS?

In this blog, posted by Ploughshares Researcher Kelsey Gallagher in early April, you'll find valuable information on how Canada's Automatic Firearms Country Control List allows the countries on it to purchase Canadian-made automatic weapons. The focus of this report is on Qatar and North Macedonia, the two newest additions to the AFCCL, but there is also data on recent additions Austria, Ireland, Japan, and Switzerland.

SPEAKING OUT AGAINST EWIPA

From April 6-8, delegates from more than 65 nations and more than 15 civil society organizations met in Geneva, Switzerland to work on the details of an international political declaration "to address the humanitarian harm arising from the use of explosive weapons in populated areas." Ploughshares Executive Director Cesar Jaramillo attended and delivered statements on behalf of Project Ploughshares and SEHLAC (the Human Security Network in Latin America and the Caribbean), both members of the International Network on Explosive Weapons (INEW).

A key quote:

This is a time for boldness. We have come a long way, but there remain areas that, depending on the decisions that are made in the next few weeks, will lead to a stronger – or a weaker – political declaration. We do hope that the states involved in this process have the courage, the foresight, indeed the audacity, to craft a robust political declaration that helps to reduce human suffering and honours civilian victims.

More information on the April consultations can be found on the INEW website.

PREPARING FOR THE ATT CONFERENCE

In late April, Ploughshares Executive Director Cesar Jaramillo attended the second preparatory conference in advance of the August Conference of States Parties to the Arms Trade Treaty. As the Board Chair of the Control Arms coalition, he presented closing remarks.

Cesar noted progress in achieving gender balance and integrating gender perspectives in "the deliberations and outputs of the sub-working groups and the ATT Secretariat." But he also expressed "concern regarding the lack of a dedicated framework for reviewing progress in the implementation of commitments arising from the annual thematic focus of other [Conference of States Parties to the ATT] Presidencies." He indicated that members of Control Arms consider this "a missed opportunity and would encourage the Conference to explore how this could be addressed." He then offered some options.

– Wendy Stocker

MAJOR NEW PLOUGHSHARES REPORTS

In March, Ploughshares published two major new reports, both with funding support by the Mobilizing Insights in Defence and Security (MINDS) program of the Canadian Department of National Defence. According to the DND site, "MINDS is founded on the idea that policy- and decision-making are strengthened when assumptions are challenged and diverse viewpoints are considered. MINDS provides opportunities for collaboration between the Defence Team and the defence and security expert community."

Both reports challenge the government to pursue arms control more vigorously.



Arms Control in Outer Space: Status, Timeline, and Analysis is by Senior Researcher Dr. Jessica West and intern Lauren Vyse. The heart of the report is a timeline that goes from 1955 to 2021, indicating the main diplomatic initiatives and milestones in arms control in outer space. The timeline also puts these events in context by providing some key developments related to weapons and defence. A fascinating and useful tool for anyone interested in the history of outer space arms control.

The report also analyzes obstacles to current attempts to improve arms control in space. And then it goes on to explain how these obstacles can be overcome. It concludes by stating: "Arms control is urgently needed to ensure that outer space remains a peaceful domain that can be freely used for the benefit of all." The goal is not easily reached, but it is attainable. As the report notes, "challenges are inherent to arms control in general, and have been addressed through various means elsewhere. We can and should learn from these experiences."

Arms Control in Outer Space has many hyperlinks to primary and secondary sources. It brings together a lot of valuable information and offers useful insights – a must read for anyone interested in outer space security.

The second report is *Regulating New Tools of Warfare: Insights from Humanitarian Disarmament and Arms Control Efforts* by Senior Researchers Dr. Jessica West and Dr. Branka Marijan and intern Emily Standfield. Here the focus is on emerging technologies, especially weapons enabled by artificial intelligence (AI) and so-called autonomous weapons.

Like the other report, this one thoroughly examines relevant contexts, including related arms control regimes. As the report notes, "we can learn important lessons about how to develop new measures to regulate the development and use of emerging technology for warfighting and weapons purposes by examining previous humanitarian disarmament and arms control efforts."

Also acknowledged, however, is the fact that contemporary technologies and conditions do create new challenges:



Adaptation is key. While the lessons of the past may not provide a detailed roadmap for the future, they do help us to identify the signposts along the way. Indeed, looking back, it is clear that there is more than one path to success, and that the work of arms control, disarmament, and humanitarian protection is never really finished. The most important lesson that we can learn is the value of persistence and creativity.

Current world conditions can cause us to despair. But there is reasonable hope expressed in the conclusion of this thoughtful and evidence-based report: "Failed efforts and first steps should not be lamented but valued as steppingstones to the next advance. Many actors must take many steps to reach the goal: a broad and effective governance regime."

Like the first report, *Regulating New Tools of Warfare* contains many useful hyperlinks to primary and secondary sources. The reader who takes the time to carefully consider all that is on offer here will emerge at its conclusion with a much greater understanding of arms control – its history and its future. \Box

How civil society can help to end war

Written by Peter Noteboom

Before legislation is passed and treaties are signed, history tells us civil society plays a critical and irreplaceable role in ending war. Labour unions, human rights organizations, faith communities, community organizations, educational institutions, healthcare workers – all play their parts in channelling the political will of a society.

ENDING THE KOREAN WAR

The Korean War began in 1950 and a ceasefire or armistice was declared in 1953. But no peace agreement has ever been signed. And so the war has not yet ended.

in not

Both North and South Korean governments have used the conflict as an excuse to violate the human rights of citizens, devote scarce resources to the military rather than human health and welfare, and maintain the separation of millions of Korean families that exist on both sides of the border that was sealed in 1953.

Korean civil society has for many years sought to end the war and build peace. Now more than 370 Korean civil society organizations are endorsing the Korea Peace Appeal and urging their counterparts in Canada and around the world to support the campaign. As Canada contributed more than 26,000 soldiers to the United Nations forces that fought in Korea, where 516 Canadians died, Canadian civil society has a role to play.

The Korea Peace Appeal aims to collect 100 million signatures in support of an action to end the war, establish a nuclear-free zone, resolve the conflict, and invest in human security and environmental sustainability. The signatures will be delivered to the United Nations and the governments of the countries involved in the war, including the Republic of Korea, the Democratic People's Republic of Korea, the United States, and China.

On May 4, The Canadian Council of Churches joined the National Council of Churches in Korea in support of the campaign. The United Church of Canada, a CCC member, is a longstanding global partner of Korean churches and faith communities and is championing the appeal in Canada. It has committed to securing 10,000 signatures.

This campaign invites comparisons with the current situation in Ukraine. What actions will civil society take in Russia? In Ukraine? In Canada?

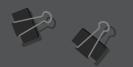
SIGN THE PETITION

Sign the petition at <u>https://en.endthekoreanwar.net</u> to help to

- End the Korean War and establish a peace agreement
- Create a Korean Peninsula and a world free from nuclear weapons and nuclear threat
- Resolve the conflict with dialogue and cooperation instead of sanctions and pressure
- Break from the vicious cycle of the arms race and invest in human security and environmental sustainability.

Peter Noteboom is the General Secretary of The Canadian Council of Churches.

An Editor's Appeal





As I edited features and wrote summaries of events and publications for this issue of <u>The Monitor</u>, I was impressed – more than impressed – with the scope and scale of the work done by a small team of dedicated researchers and one overworked executive director. If you will, take a few moments to scan the titles. See if you don't have a similar response.

Now, I would ask you to consider how you might build on that reaction. You might choose to pass your copy of <u>The Monitor</u> on to a friend or relation or pass along the link to our website to a colleague. You might resolve to attend more Ploughshares events in future. All excellent options.

You might also decide that such work is worthy of financial support and make a special donation. That's what I have done. May I appeal to you to do the same? Thank you!



