

THE PLOUGHSHARES MONITOR

VOLUME 41 | ISSUE 3

AUTUMN 2020



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75 years later, all nuclear
weapons must go

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Analyzing Canada's
2019 report

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Has it been fired?

ARTIFICIAL INTELLIGENCE
How should militaries use it?

HUMAN RIGHTS
and the Canadian
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*"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*

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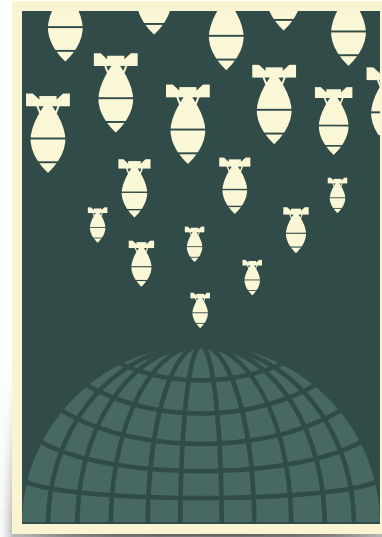
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From the Director's Desk

75 years after Hiroshima and Nagasaki, all nuclear weapons must go

Written by Cesar Jaramillo



COVID-19 disrupted international security diplomacy this year and led to the postponement of the consequential Review Conference of States Parties to the Nuclear Non-Proliferation Treaty (NPT). But 2020 remains a significant year for the global nuclear disarmament and non-proliferation regime.

Lest we forget

This year, the world marked the 75th anniversary of the destruction of Hiroshima on August 6, 1945, and Nagasaki on August 9. The 2020 NPT Review Conference would have marked the 50th anniversary of the Treaty. And it is likely that the Treaty on the Prohibition of Nuclear Weapons will reach the 50 ratifications required for its entry into force.

Each milestone reminds us of how woefully distant the world remains from the goal of complete and irreversible nuclear disarmament. Approximately 14,000 nuclear warheads remain in existence: a testament to the ineffectiveness of the current approach to nuclear disarmament—and to the clear and present risk of a new humanitarian catastrophe that would dwarf those of 1945.

The NPT was designed to prevent non-nuclear-weapon states from acquiring nuclear weapons and to compel nuclear-weapon states to eliminate them. But those that hold nuclear weapons have resisted, avoided, and ignored not only their treaty obligations, but the global groundswell of support for nuclear abolition.

Throughout successive NPT review cycles, Project Ploughshares has witnessed with disappointment the unchanging posture of nuclear-weapon states. They cling to a double standard that allows them to keep their weapons, while denying those weapons to others. This attitude distracts from valid concerns about proliferation dangers, generates strong proliferation pressures, and creates disincentives for non-nuclear-weapon states to adhere to non-proliferation commitments. Ultimately, this us-and-them approach offends a fundamental sense of justice and equality among nations.

While almost all states agree that the existential risk posed by these weapons cannot be justified, more states today have nuclear weapons than did when the NPT came into force. Vague declarations affirming support in principle for the eventual goal of a world free of nuclear weapons will no longer suffice.

We are in this together

The goal of a world free of nuclear weapons lies at the very heart of the NPT and remains a foundational objective of the United Nations. Now the international community has an opportunity to take concrete steps toward that goal—without exceptions or exemptions.

The COVID-19 pandemic has created a global sense of shared vulnerability. And we are seeing that the countries best able to protect their own vulnerable populations do so

“All NATO members, including Canada, embrace this overt nuclear deterrence policy as legitimate security doctrine. Clearly, such a policy can only obstruct any journey to a nuclear-weapons-free future.

through investments in science, healthcare, and social welfare, rather than stockpiles of nuclear weapons.

The conviction that nuclear weapons must and can be eliminated is not based on a naive or crude understanding of international relations. Project Ploughshares is fully aware that some states enshrine nuclear weapons in their national security doctrines and strategies. However, any perceived benefits of nuclear weapons possession are far outweighed by the threat these weapons pose to all humans.

A renewed focus on this humanitarian disaster has served as catalyst and rallying point for a growing number of states and civil-society organizations—and was critical to the adoption of the Treaty on the Prohibition of Nuclear Weapons in 2017. But the abolition of nuclear weapons is not based only on humanitarian grounds. These weapons stand as a symbol of a corrupt multilateral global system riddled with double standards. A system that must be dismantled and replaced.

Canada: Prepared to lead?

Non-nuclear-weapon states in NATO continue to accept U.S. nuclear weapons on their soil and train their pilots to drop U.S. nuclear bombs, contrary to the letter and intent of Article II of the NPT. All NATO members, including Canada, embrace this overt nuclear deterrence policy as legitimate security doctrine. Clearly, such a policy can only obstruct any journey to a nuclear-weapons-free future.

Despite its official acceptance of such NATO policy, Canada remains uniquely positioned to assume a leadership role in the push for a world free of nuclear weapons. Besides enjoying well-earned international credibility as an honest broker, Canada is a state party to the Nuclear Non-Proliferation Treaty and a member of the G7 and G20.

To date, however, Ottawa has failed to make nuclear disarmament a top foreign policy priority—even though such a stand would have wide public support.

Civil society organizations, former Canadian diplomats and government officials, and more than 1,000 recipients of the Order of Canada are urging the Canadian government to take a more ambitious and proactive approach to nuclear disarmament that includes Canada's accession to the Treaty on the Prohibition of Nuclear Weapons.

In 2010 a unanimous motion by the House of Commons and Senate urged the Canadian government “to engage in negotiations for a nuclear weapons convention as proposed by the United Nations Secretary-General” and “to deploy a major worldwide Canadian diplomatic initiative in support of preventing nuclear proliferation and increasing the rate of nuclear disarmament.” It fell on deaf ears then, but can be the basis for renewed Canadian engagement now.

Demands for nuclear abolition are mounting. The message is clear: the threat posed by nuclear weapons is real; their use is unacceptable; and their complete elimination is not negotiable. The cost of inaction could result in the greatest human-made catastrophe in history. □

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Analyzing Canada's 2019 Exports of Military Goods report



Written by Kelsey Gallagher

According to Canada's *2019 Exports of Military Goods* report, last year Canada exported weapons worth almost \$4-billion—the highest value on public record. Saudi Arabia, which received 76 per cent of those weapons, is now almost certainly Canada's prime customer, unseating the United States.

In 2019, most Canadian arms went to countries engaged in violent conflicts in the Middle East and North Africa, even though these customers were repeatedly implicated in serious violations of international humanitarian law (IHL). Such exports continued despite Canada's 2019 accession to the Arms Trade Treaty (ATT), which regulates the trade and transfer of weapons.

Although the report indicates that Canada took some steps toward transparency, problems persisted. Canadian officials continued to publish general and unclear data. Weapons exports to the United States, crucial to the Canadian arms trade, remained off the record.

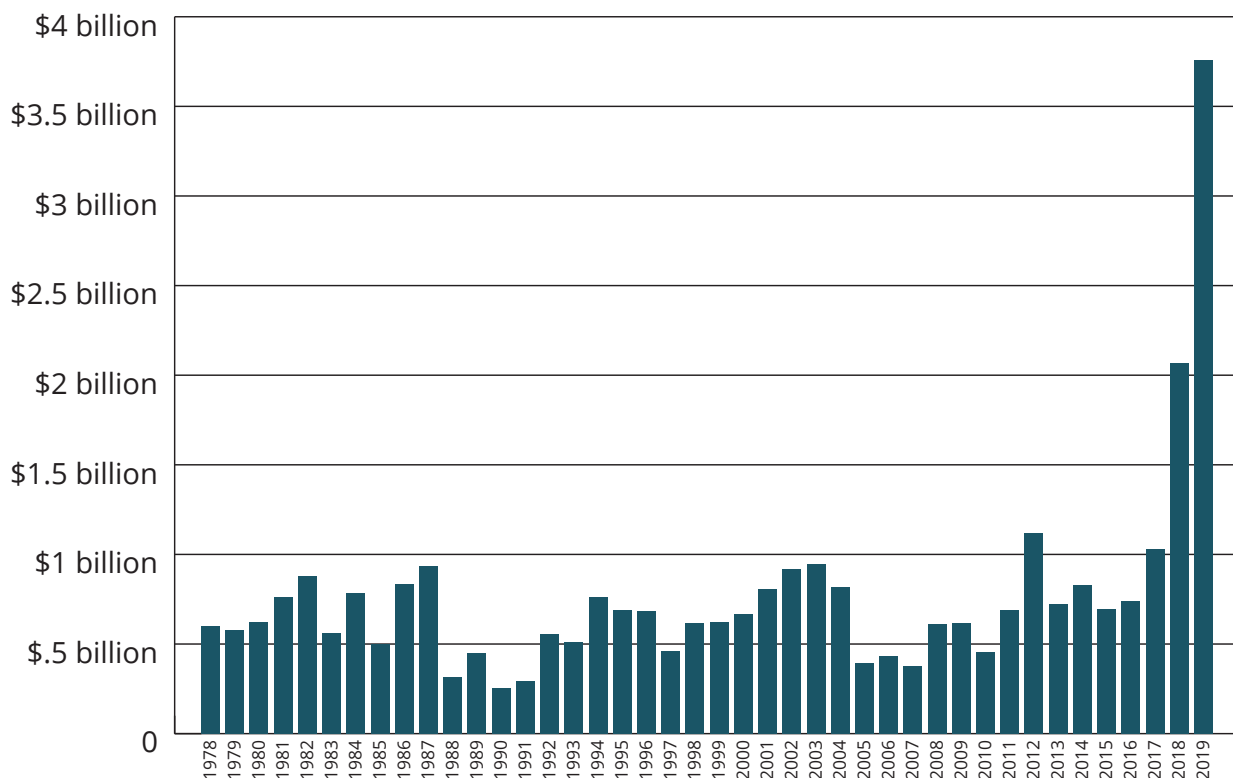
Summary of trends

In 2019, Canada reported the largest export of weapons in its history, building on a previous record-high year in 2018. Weapons exports in 2019 saw a 78 per cent increase over the prior year, rising from \$2.1-billion to \$3.75-billion.

In 2019, Canada shipped weapons to 82 countries, down from 89 in 2018. The top three recipients were Saudi Arabia (\$2.8-billion), Belgium (\$151.6-million), and Turkey (\$151.4-million). Exports to the United Kingdom jumped 54 per cent, from \$76.8-million in 2018 to \$116-million in 2019.

Carryovers from the 2018 list of the top 10 included Australia (\$61.3-million), Germany (\$38.9-million), the United Arab Emirates (\$36.6-million), and Spain (\$24.5-million). Japan (\$36-million) returned to the top 10, while Singapore (\$39.8-million) was a new addition. These last two countries indicate a trend in increased military and procurement spending in the Asia-

FIG. 1. TOTAL NON-U.S. CANADIAN MILITARY EXPORTS 1978-2019 (All values are in constant 2020 Canadian dollars.)



Pacific region.

Exports to France, traditionally a stalwart consumer of Canadian weapons, declined to \$20.3-million from \$64.2-million in 2018.

The top three customers for Canadian weapons in 2019



SAUDI ARABIA

Most of the arms exported to Saudi Arabia were light armoured vehicles (LAVs) made by General Dynamics Land Systems-Canada (GDLS-C) in London, Ontario. Saudi-destined exports also included 635 rifles and carbines (likely including Winnipeg-made PGW Defence Technologies Inc. sniper rifles), 31 large-calibre artillery systems, and 152 heavy machine guns, which appear to have been mounted on outgoing GDLS-C LAVs.

Following the 2018 murder of journalist Jamal

Khashoggi by Saudi agents, Canada announced a freeze on new export permits to Saudi Arabia. Meanwhile, there was mounting evidence of Saudi IHL violations and the diversion of Canadian weapons to Yemen and Yemeni security forces. These activities should, under Canadian and international law, make Saudi Arabia ineligible to receive Canadian arms.

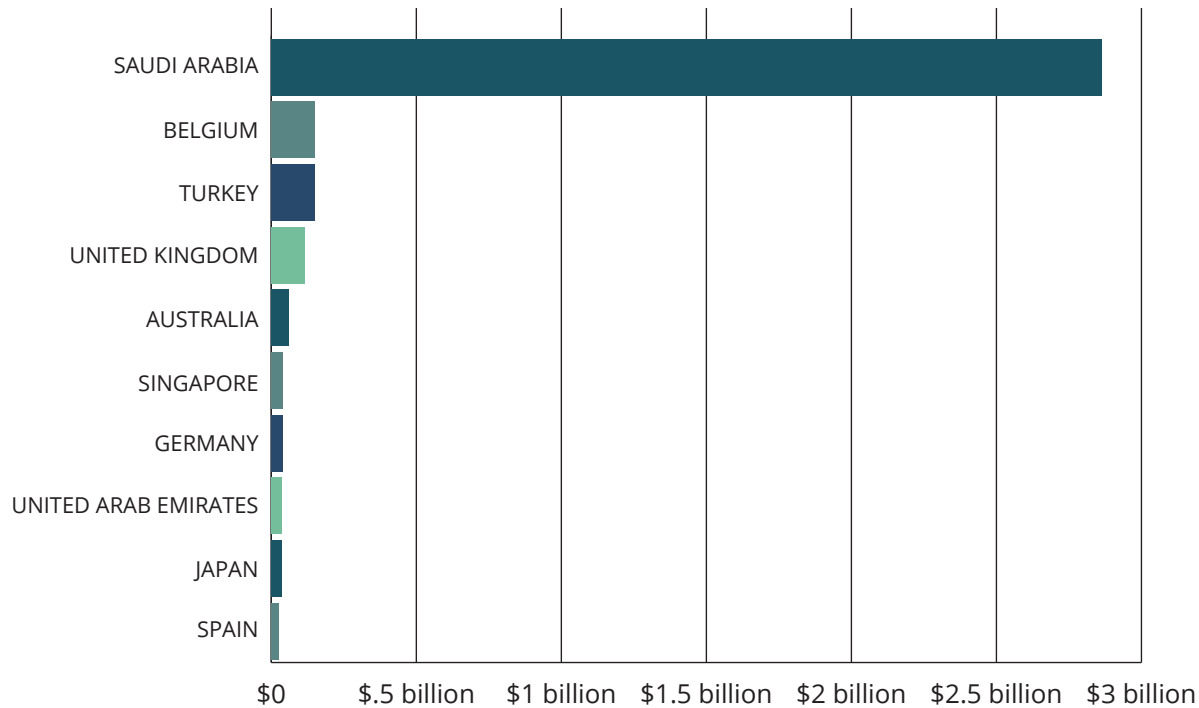
As the freeze did not affect previously approved export permits, Canadian LAVs continued to be transferred to Saudi Arabia in record-breaking numbers. The freeze on new permits was lifted in April 2020, after Canada determined that there was “no substantial risk” that Canadian weapons would be used to facilitate war crimes or destabilize the region, or were likely to be diverted—despite significant evidence to the contrary.



BELGIUM

Belgium was another major recipient of GDLS-C LAVs. After being fitted with Belgian-made John Cockerill

FIG. 2. TOP 10 NON-U.S. DESTINATIONS FOR CANADIAN WEAPONS IN 2019



(formerly CMI Defence) anti-tank turrets in Ontario, the LAVs were shipped to Belgium and thereafter northern France. A recent investigation by Amnesty International reveals that the LAVs were then used on European soil to train Saudi security forces.

When the LAVs sent to Belgium for use by the Saudi military are added to those sent directly to Saudi Arabia, it appears that total 2019 LAV exports for Saudi use exceeded \$3-billion. This cumulative value is larger than Canada's total non-U.S. arms exports for all of 2015, 2016, and 2017 combined.



TURKEY

Most of the exports sent to Turkey were L3Harris WESCAM Electro-Optical/Infra-Red sensors—imaging systems for tracking targets and guiding munitions that

are usually mounted to the underbelly of military aircraft.

In October 2019, Turkey launched “Operation Peace Spring,” a major military offensive into northeastern Syria against primarily Kurdish groups. In response, Global Affairs Canada (GAC) announced a freeze on all new export permits to Turkey. In April 2020, GAC announced that, until further notice, export permits for Canadian arms to Turkey would be reviewed with a “presumption of denial,” effectively blocking future weapons sales.

In spring 2020, Statistics Canada data appeared to indicate that exports of Canadian imaging systems to Turkey had returned to levels seen prior to the export freeze, raising concerns that WESCAM units were being exempted from the embargo. Turkish officials later verified that they were again receiving WESCAM sensors.

While the export freeze was initially heralded as a victory for Canada's arms control regime, the resumption of such exports reveals significant flaws. Ottawa's reason for the exemption has not been revealed, but consistent pressure from Turkish officials, including direct calls between Turk-

FIG. 3. REPORTED 2019 MILITARY EXPORTS TO PERU (P. 46)

Peru	2-1	\$395,261.87
	2-4	\$206,438.62
	2-5	\$206,438.62
	2-6	\$601,700.49
	2-7	\$601,700.49
	2-11	\$734,960.49
	2-13	\$601,700.49
	2-18	\$601,700.49

Values for Canada’s Export Control List (ECL) categories 2-4 (“Bombs, torpedoes, rockets...”) and 2-5 (“Fire control, and relating alerting and warning equipment...”) are the same, indicating that an export has been double-counted. Categories 2-6, 2-7, 2-13, and 2-18 all have the same total, indicating that the same item was counted multiple times; in this case it seems likely that armoured vehicles counted in ECL category 2-6 (“Ground vehicles and components”) were fitted with exports that were counted under the three other categories.

ish president Erdoğan and Canadian prime minister Trudeau, was reported in the Turkish media.

Canada joins the ATT

On September 17, 2019, Canada became the 103rd state party to the Arms Trade Treaty. The Cana-

“Canadian officials persist in citing “commercial confidentiality” to justify the omission of key data on Canadian arms exports. But the corporate sector’s legitimate need for confidentiality must be balanced with Canada’s domestic and international arms-control obligations.

dian government must now meet more stringent obligations to regulate and report the export of weapons systems.

Since then, Canada has made some positive steps toward transparency. For the first time, the government of Canada acknowledged that the annual publication of the *Exports of Mili-*

tary Goods report is a “legal requirement,” thus ensuring that this information will be regularly made public, no matter which political party is in power or the government’s agenda.

However, reporting on arms transfers still does not meet a necessary standard. The current report continues to present data in unhelpful, confusing generalizations. Weapons exports are not individually defined, but organized under each destination into 22 categories, some as broad as “software” and “technology.” Such vagueness limits the amount of information that can be taken from the report and frequently results in double- or even multiple-counting, as one exported item may include systems or components from multiple categories. Counting items more than once also results in inflated export values for that destination (see Fig.

3).

The report includes the number of export permit applications and approvals. However, the value of individual permits and the weapons each permit relates to is open to interpretation. Permit denials are reported, but reasons for denials remain vague; the only reason listed for four of the

five permit denials in 2019 was “Canadian foreign and defence policy.” It should be noted that, since permit denials were introduced to the annual reports in 2016, reasons for denials have become increasingly ambiguous. But the arms-control community needs to know why permits are denied to gauge the health of Canada’s regulatory regime.

Data pertaining to Canadian foreign military aid is combined with data on the sale of surplus Department of National Defence materiel. Worriingly, the 2019 report states for the first time that export permits are not necessary for these transfers, as “the Department of National Defence [DND] is not subject to the EIPA [Export and Import Permits Act].” However, Article 5 (“General Implementation”) of the ATT clearly calls for a consistent and universal application of the treaty to all arms exports.

The need for transparency

To satisfy the ATT’s requirements for transparency, states parties are expected to submit annual reports on arms exports to the ATT Secretariat and to review the reports of others. It is reasonable to assume that at least some of the data omitted from GAC’s annual reports will also be omitted from reports that Canada sends to the ATT Secretariat. This would set a disconcerting

precedent in Canada’s first year as a full member of the treaty.

Canadian officials persist in citing “commercial confidentiality” to justify the omission of key data on Canadian arms exports. But the corporate sector’s legitimate need for confidentiality must be balanced with Canada’s domestic and international arms-control obligations. As well, we must consider the possibility that Canadian officials could omit key details on Canada’s arms trade if their publication would threaten lucrative or politically sensitive deals.

Transparently communicating export data not only satisfies the government’s duty to its own citizens, but contributes to the development of positive norms and best practices when engaging in the trade and transfer of weapons.

Hiding arms sales to the United States

While the 2019 report introduced some new detail on arms exports to the United States, most aspects of this crucial trade relationship remain unclear.

This year’s report included a new ECL category, Group 9, which reports the export of “full systems” (i.e., a LAV or a rifle) to the United States alone (see Fig. 4). In future years, the re-

FIG. 4. GROUP 9 EXPORTS TO THE UNITED STATES

ECL Item Number	Quantity Exported
9-1 Battle tanks	—
9-2 Armoured combat vehicles	48
9-3 Large-calibre artillery systems	—
9-4 Military aircraft and related systems	—
9-5 Military helicopters and related systems	—
9-6 Vessels and submarines that are armed and equipped for military use	—
9-7 Missiles and missile launchers	—
9-8 Small arms for police or military end-use	—
9-9 Light weapons for use by members of armed or security forces and delivering primarily direct fire	—

Note: data only pertains to goods shipped between September 1 - December 31, 2019.

“For decades, Project Ploughshares has argued for the complete and clear reporting of all sales of Canadian military goods to the United States. The government of Canada argues that the special trade relationship between the two countries requires more relaxed reporting.



port will include Group 9 data for all destinations. However, as most Canadian arms exports are parts and components, most exports to the United States are still not being reported. The 2019 exports report does not even include an annual aggregate value for arms exports to the United States.

Since 2017, ECL categories 2-1, 2-2, 2-3, and 2-4, which include firearms, their components, as well as ammunition and munitions, have included data on the United States. Small arms and light weapons sent to the United States are also reported to the United Nations Register of Conventional Arms. This information allows some insight into Canadian weapon exports to the United States. Here again, overly broad export categories reduce the value of the data.

For decades, Project Ploughshares has argued for the complete and clear reporting of all sales of Canadian military goods to the United States. The government of Canada argues that the special trade relationship between the two countries requires more relaxed reporting. But Canadian arms exporters still complete export permits for transfers to the United States; thus, it is not clear how reporting this data would have adverse effects. What is clear is that not reporting exports to the United States is a breach

of the requirement for universal reporting cited in Article 5 of the ATT.

A boom for the arms trade, a bust for human rights

As the *2019 Exports of Military Goods* report reveals, Canada has made progress toward greater transparency, but must take additional steps. Exported items continue to be aggregated into broad categories that hide necessary details. Critical data on permit approvals and denials is excluded. Data on exports to the United States is still largely off the public record.

The 2019 report on Canada's military exports reiterates the government's position that "Canada's export controls ... are among the most rigorous in the world." But the reality is that Canada is selling prodigious quantities of weapons to documented abusers of human rights and to participants in some of today's most horrific conflicts.

As Canada celebrates the first anniversary of its accession to the ATT, GAC needs to achieve greater transparency on the arms trade, while stemming the flow of weapons to those who will misuse them. Both the ATT and Canada's domestic arms-control regime require such actions. □

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The Canadian Commercial Corporation: Not yet a protector of human rights



Written by Chris Earle

Canada's accession to the Arms Trade Treaty (ATT) last year necessitated some welcome changes to Canada's arms-control policies. But it appears that the export regime's human-rights protections are still flawed. In this article, we focus on the activities of the Canadian Commercial Corporation (CCC).

The traditional role of the Canadian Commercial Corporation

This crown corporation is responsible for helping to secure deals between Canadian exporters and foreign governments. Most notably, the CCC secured a \$14-billion deal for light armoured vehicles between General Dynamics Land Systems-Canada and Saudi Arabia, a country long accused of human-rights violations, most recently in the conflict in Yemen. The CCC has historically negotiated arms deals without adequately taking human rights into account, although such considerations have long been required by Canadian law and are now required by the ATT.

On March 19, 2019, the Office of the Auditor General (OAG) issued a report on the CCC; this report became more generally known when it appeared in the OAG's collection of reports in spring 2020. Among other matters, the report criticized the CCC's "contract management" and "performance monitoring and reporting." Findings indicated that the CCC had been lax in establishing "a formal process to identify and mitigate the risks related to human rights when doing business with foreign governments" and in creating "a monitoring system that tracked actual fees charged on a contract to compare those costs with the estimated pricing."

On April 9, 2020, Global Affairs Canada (GAC) released the statement "Canada improves terms of light armored vehicles contract, putting in place a new robust permits review process." It made clear that the deal negotiated by the CCC is governed exclusively by and subject to the Saudi legal system, and that disclosure of the contract terms could cost the Canadian government billions of dollars in penalties.

The CCC's new process to assess human rights

In response to the OAG report, the CCC established a Human Rights Committee to assess, monitor, and act on human-rights abuses as part of a broader enhancement of Responsible Business Conduct. New processes include due diligence questionnaires based on ATT requirements.

“Under the current policy, it appears that the CCC is facing a conflict of interest. It is being held responsible for reporting possible human-rights violations by the same clients that provide the fees on which the organization’s viability depends. Reporting violations could result in loss of contracts for the abuser and, hence, loss of fees for the CCC.

The CCC now also has a role in “influencing Canadian exporters” to aid in assessing human-rights concerns and implementing the CCC’s ongoing monitoring and assessment activities by completing questionnaires and by reporting directly to the CCC any concerns they have about their products being used to violate human rights. However, it is not clear how the CCC intends to ensure that these expectations are met.

According to the CCC’s Human Rights Policy and Human Rights Due Diligence Instructions, if exporters or the CCC itself become aware of possible human-rights violations, they are to inform the CCC’s Human Rights Committee, which then informs and makes recommendation to the CCC’s Risks and Opportunities Committee, which “can further recommend against proceeding with a transaction if the adverse human rights risks are too high, and those risks cannot be prevented or mitigated.” This committee then raises the concerns with the CCC’s Board of Directors, which “has oversight and provides governance for CCC policies involving Responsible Business Conduct poli-

cies, practices and processes.” The Board could then “communicat[e] with the Export Controls Division at Global Affairs Canada if CCC believes it acquires information relevant to the issuance of an export permit.”

The process outlined here could result in the communicating of concerns to GAC, which is, of course, ultimately responsible for clearing export permits.

This new role for manufacturers could be highly effective in deals that include project maintenance and training, giving the exporter on-the-ground proximity that might not be an option for GAC or the CCC. In such cases, a technician or engineer might go to a client country and directly encounter instances in which Canadian exports were being used contrary to specified purposes. In

one example, aircraft engines sold to be placed in civilian aircraft were found riddled with bullet holes.

However, not all suppliers will have the capacity to carry out adequate human-rights assurances. For example, PGW Defence Technologies—a manufacturer of sniper rifles that have been sold to Saudi Arabia, among other buyers—apparently operates out of a “nondescript strip mall in Winnipeg,” according to CBC News. Nor is it certain that a company would choose to risk possible future sales by reporting concerns about a lucrative client.

The bottom line is that GAC already carries out human-rights risk assessments, so reporting to GAC adds nothing new to that part of the process. The changes to process outlined above do not change the fundamental flaw in the system: the risk that human rights will be violated is not assessed until long after a contract is signed.

Becoming fiscally responsible

The CCC has also been instructed to become fi-



A screen grab from Al Masirah TV/Al Jazeera appears to show a Canadian-made Saudi light armored vehicle captured by Houthi forces in September 2019. The Canadian Commercial Corporation secured a \$14-billion deal for light armoured vehicles between General Dynamics Land Systems-Canada and Saudi Arabia.

nancially self-sustaining, no longer reliant on parliamentary subsidies. Funding is to come from “Fees for Service.” The fees indicated in the CCC’s 2018/2019 annual report provided revenues of \$31-million, a 50 per cent increase over fees for the previous year. The CCC annual report states, “Fees are generally calculated as a percentage of the contract value.” A financial snapshot from the OAG report shows figures commensurate with a fee of slightly less than 1 per cent of the contract’s value. At this rate, a \$14-billion deal could reasonably generate more than \$100-million in fees, roughly three times current annual revenues.

Under the current policy, it appears that the CCC is facing a conflict of interest. It is being held responsible for reporting possible human-rights violations by the same clients that provide the fees on which the organization’s viability depends. Reporting violations could result in loss of contracts for the abuser and, hence, loss

of fees for the CCC.

There seem to be many good reasons why both exporting companies and the CCC might choose to not look too closely into possible violations and few reasons to believe that the new processes will change much in the current export regime.

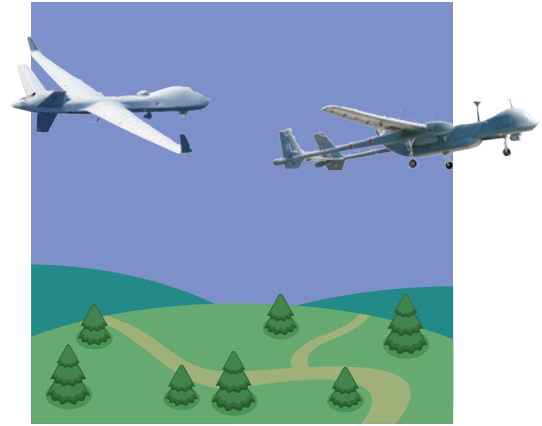
Getting to real solutions

The OAG report raises concerns about the way in which export contracts are secured and their details hidden from Canadians. The consequences of such a process include huge legal penalties for Canada and violations of human rights abroad.

While the Canadian Commercial Corporation is taking steps to alter the way in which it does business, the fact remains that the process it uses to negotiate arms contracts does not facilitate the serious and timely assessment of human rights that is required by Canadian law and the ATT. □

Chris Earle was a Project Ploughshares Peace Research Intern this summer.

Armed drones on the Canadian military horizon



Written by Branka Marijan

The Canadian government appears to be moving closer to acquiring armed drones. According to Justin Ling of Vice News, Canadian government officials recently briefed industry partners on systems requirements, with long-range surveillance and the ability to engage targets remotely seen as key to protecting Canadian territory and participating in foreign missions. But questions about the policies guiding the use of drones by the Canadian military remain unanswered and deserve more attention from civil society and the Canadian public.

The road to drone acquisition

The Canadian Armed Forces (CAF) first showed an interest in drones in 2000, with the start of the Joint Unmanned Surveillance and Target Acquisition System (JUSTAS) program. This plan met with internal and public opposition related to costs and disagreement on the best system.

For two years beginning in 2008, CAF person-

nel in Afghanistan flew Heron drones leased from Israel. The Heron drones were used for surveillance and did not carry weapons. In 2011, military leaders requested \$600-million to buy armed drones for use in the Libyan war. Their request was denied.

Then, in 2017, Canada's *Strong, Secure, Engaged* defence policy, in initiatives 50 and 91, outlined a path for drone acquisition by the Royal Canadian Air Force. Soon after, Canada's Department of National Defence (DND) renamed the JUSTAS program the Remotely Piloted Aircraft System (RPAS) procurement project. RPAS, currently in stage three of five, is expected to cost between one and five billion dollars. DND hopes to award contracts in 2022 or 2023 and have drones in operation by 2025.

According to David Pugliese in the *Ottawa Citizen*, the government announced last year that it was looking at L3 Technologies MAS Inc. and General Atomics Aeronautical Systems, Inc. along with the United States government, as possible suppliers. L3 proposed the Heron drone from Israeli Aircraft Industries,

while General Atomics and the U.S. government proposed the MQ-9B SkyGuardian, a successor to the well-known Reaper and Predator drones. Canada could still decide to go with another supplier.

The appeal of drones

Drones are becoming increasingly popular with national militaries. The Drone Databook Update of March 2020 claims that 35 countries have Class III heavy or armed drones. The militaries of 102 countries use drones for intelligence, surveillance, and reconnaissance (ISR).

“The deployment of armed drones, even by Canadian forces that largely abide by international humanitarian law, raises concerns about their possible use in assassinations, sometimes called signature strikes. The United States has used drones to wage an assassination campaign across the Middle East and North Africa, killing thousands, according to some estimates.

One critical role for Canadian drones will be surveilling the Canadian Arctic and maritime approaches. As the Northwest Passage becomes more navigable, water traffic is expected to increase. The ability to monitor remote waterways and landmasses is seen as crucial in maintaining sovereignty.

The Heron seems particularly well suited for this job. It can stay in the air for 52 hours for ISR missions. The SkyGuardian is capable of 48 consecutive hours when flown for ISR, can fly in conditions as cold as -41 degrees Celsius, and has a de-icing system.

But, in addition to surveillance and reconnaissance, Canada's military also wants strike-capable drones. A few years ago, Chief of Defence Staff Gen. Johnathan Vance said, “In my view there's little point to having a UAV (unmanned aerial vehicle) that can see a danger but can't

strike it if it needs to.” Both the Heron and SkyGuardian can be equipped with various weapons, and Canada has indicated interest in armed drones equipped with Hellfire missiles and laser-guided bombs.

Growing concerns

The deployment of armed drones, even by Canadian forces that largely abide by international humanitarian law, raises concerns about their possible use in assassinations, sometimes called signature strikes. The United States has used drones to wage an assassination campaign across the Middle

East and North Africa, killing thousands, according to some estimates. International and national regulations on such use are not clear.

Gen. Vance has sought to ease worries about targeted strikes, noting that the public is imagining a “Hollywood view of assassinations.” According to Vance, “there are rules of engagement, there is an approved target, there is the absolute commitment to avoiding any col-

lateral damage, any harm to a civilian population. So to us, it's just another weapon.”

How accurate is this characterization of armed drones and their intended use by Canadian forces?

As Matt Korda, a researcher for the Federation of American Scientists, noted in a recent analysis of Canadian drone acquisition, it seems that Canada could come to mirror U.S. practice. He points to the 2016 “letter of interest” to suppliers from DND/CAF, which lays out several possible scenarios, including an attack on a “High-Payoff Target”—essentially, an assassination.

In one scenario, Korda notes, Canada refers to a case in which a drone strike is called on a group of “Fighting Age Males” holding a radio. This scenario is reminiscent of real strikes by the United States that resulted in civilian deaths.



This photograph shows the Canadian Arctic icepack, photographed from CP-140 Aurora aircraft in September 2019. The Heron, pictured on next page, would be particularly well suited for surveilling the Canadian Arctic and maritime approaches, a critical role for Canadian drones. *DND*

Accounts of attacks on weddings and funerals are only too easy to find.

Another scenario raised by Canada and noted by Korda relates to domestic surveillance. In this case, a drone is used to surveil a G20 protest and any video that seems to indicate “radical elements” is handed over to police. Radical behaviour apparently includes hanging a banner. When the excessive policing and security practices of the 2010 G20 Summit in Toronto are recollected, it seems that there is reason to fear that greater surveillance could lead to infringements of civil liberties.

Avoiding a dystopian future

Over the last decade, there has been an increase in the number of military drones being flown over regions that do not appear to be involved in armed conflict. Often without official permission. As research studies and reports on human rights have shown repeatedly, civilians are being killed and injured, while national security is shaken.

Drones are also being used to surveil domestic populations engaged in lawful activities, including peaceful protests. And the situation could get worse. According to the Vice News story, a Canadian government representative admitted that armed drones could be deployed over domestic airspace.

Meanwhile, the United States is leading international efforts in “responsible export and subsequent use of drones” that lack transparency and the involvement of relevant civil-society groups.

The possible negative impacts of such actions are immense. And, at present, it is not at all clear how Canada plans to avoid them.

As Canada’s acquisition of armed drones seems set to go ahead, important questions about drone use are becoming increasingly critical. Citizens and civil-society groups need to be engaged in this discussion and in closely scrutinizing the policies that will guide Canada’s military use of the drones for domestic surveillance as well as in engagements abroad.

Do we really want to see Canadian armed drones over domestic—or foreign—skies? □

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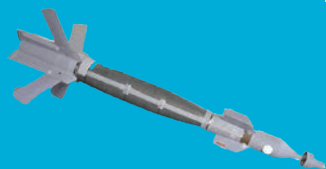
MQ-9B SkyGuardian – General Atomics
Aeronautical Systems, Inc.

Endurance for surveillance missions: 40+ hours

POSSIBLE ARMAMENTS



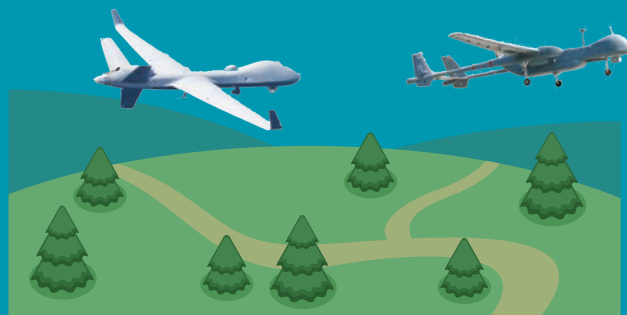
Hellfire missiles



Laser-guided
munitions

POSSIBLE MISSIONS

- Domestic surveillance
- Coastal and naval missions
- Combat operations
- Search and rescue



ESTIMATED COST: BETWEEN ONE AND FIVE BILLION DOLLARS

CONTRACT TO BE AWARDED IN 2022/2023

DRONES OPERATIONAL BY 2025

Artificial intelligence

How should militaries use AI?



Written by Erin Yantzi

Militaries are doing more research and development of artificial intelligence (AI), and are looking to implement AI systems. In early August of this year, the U.S. Defense Advanced Research Projects Agency announced that later in the month a human fighter pilot would face off against an AI algorithm in virtual combat.

While some of the claims about how AI will soon revolutionize warfare are certainly exaggerated, there is still reason for concern. Questions about the international security implications of military AI are being asked more often by governments, multilateral and non-profit organizations, academic institutions, and think tanks.

The current landscape

Today's AI demonstrates some of the abilities of human intelligence—recognition, learning, reasoning, and judgement—but never gets tired, hungry, or bored. However, AI, still a new technology, is also described as “narrow,” “weak,” and “brittle,” able to perform only specific tasks and prone to failing when pushed outside of its programming and training, or when exposed to, or operating in, new environments.

Paul Scharre, author of *The Army of None: Autonomous Weapons and the Future of*

War, notes that, like earlier general-purpose technologies, AI will be militarized. Militaries could use AI to enable more “everyday” military operations; for example, AI could be a support tool for data analysis to aid in operational decision-making, as with Project Maven (see below).

AI allows for the processing of vast amounts of data. Using AI to identify objects or reveal patterns in a battlespace could allow militaries to make better and faster decisions. In addition, AI would allow for increased integration and autonomy of military systems such as sensors, weapons, robotics, and biometric and information systems.

Project Maven

Today's militaries are overwhelmed by the data collected during operations. The U.S. Department of Defense (DoD) alone operates more than 11,000 drones, collecting hundreds of thousands of hours of video footage every year.

The U.S. Pentagon's Project Maven, also known as Algorithmic Warfare Cross-Function Team, was launched in April 2017 “to turn the enormous volume of data available to DoD into actionable intelligence and insights.” An AI-enabled surveillance platform that analyzes drone footage will allow the military to track and monitor targets. In future, it is



A materials researcher examines experimental data on the ARES artificial intelligence planner, as part of Project Maven with the U.S. Department of Defense. *Handout*

possible that Project Maven could be integrated into weapons systems to fire on those targets.

Google won the original contract to develop Project Maven. However, in April 2018, thousands of Google employees signed a letter to Google CEO Sundar Pichai, demanding an end to Google's involvement and calling for a policy that Google would not build "warfare technology." In June of that year, Google announced that it would not renew the contract that would expire in March 2019. In December 2019, Business Insider reported that software company Palantir, which specializes in big data analytics, would take over Project Maven.

On August 10, 2020, FedScoop reported that Project Maven will transition into the Advanced Battle Management System (ABMS) as part of a larger positioning of traditional backend information-technology capabilities to support broader warfighting functions. The United States Air Force will use Maven's AI capabilities to analyze and combine data from different sensors used in battle. Will Roper, the Air Force's assistant secretary for acquisition, technology,

and logistics, claimed, "There is no distinction between development systems and warfighting systems anymore in IT. ABMS and Maven are to start blurring that line in September."

AI and warfare: Reasons for concern

AI is changing warfare. The potential exists to remove humans from the decision-making process to "pull the trigger." AI will also increase the speed of military operations and responses, which could be problematic. Jennifer Spindel, a political science professor from the University of New Hampshire, warns that "militaries will need to balance their desire for a speedy response with the presence of circuit breakers to limit the potential consequences of actions."

Human control and responsibility over AI

Spindel believes that, "whether it is used for combat robots or analyzing data, artificial intelligence has the potential to decrease human involvement in war." Meanwhile, Melanie Sis-

son, a fellow of the Stimson Center, and Scharre fear that, as AI systems become increasingly complex, they will become harder for humans to understand and less transparent. According to Sisson, this could lead to blind human trust in AI systems rather than human action to ensure that the workings of AI are transparent. Scharre believes that maintaining meaningful human control of AI systems through a “centaur command-and-control model” that involves AI and human teams is key to mitigating the risks of military AI.

AI arms race

AI could give rise to a new arms race as states strive for the most powerful AI-controlled weapons systems. According to Sisson, such a race would mean high rates of investment, lack of transparency, mutual suspicion and fear, and a perceived incentive to deploy first. In its 2019 report *The State of AI*, peace organization PAX asserts that an AI arms race would have negative economic, political, and societal consequences, while endangering international peace and security.

Scharre highlights two more dangers of such a race. “An AI-accelerated operational tempo” could reduce human control on the battlefield. And the push to produce AI military systems quickly could lead to cutting corners on their safe development, testing, and evaluation. Without due process, seriously flawed systems could be put into operation.

Influencing the future

Various groups are already taking steps to control military AI.

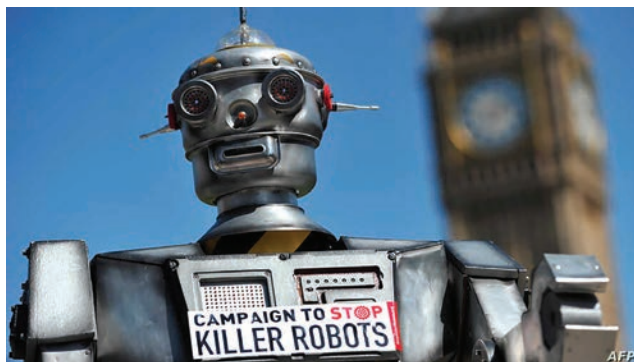
By mid-August of this year, approximately 4,500 AI and robotics researchers had signed

an open letter calling for a ban on the development of offensive autonomous weapons. Another initiative, The Safe Face Pledge, calls on organizations to pledge to mitigate the abuse of facial-analysis technology; among other commitments, they are to refrain “from selling or providing facial analysis technologies to locate or identify targets in operations where lethal force may be used or is contemplated.” As well, the Campaign to Stop Killer Robots, a coalition of 165 nongovernmental organizations, is continuing to advocate for a ban on fully autonomous weapons and regulations that ensure that meaningful human control over the use of force is retained.

Google and other tech companies have published principles for AI that include declarations that they will not design or use AI that will be applied to weapons; technology intended to injure people; or technology that gathers or uses information for surveillance in violation of internationally accepted norms, or in contravention of principles of international law and human rights.

In August 2019, the United Nations Office for Disarmament Affairs, the Stanley Center for Peace and Security, and the Stimson Center sponsored a workshop on “The Militarization of Artificial Intelligence.” The foreword to the workshop summary says, “While revolutionary technologies hold much promise for humanity, when taken up for military uses they can pose risks for international peace and security. The challenge is to build understanding among stakeholders about a technology and develop responsive solutions to mitigate such risks.”

Military AI has the world’s attention. Concerns have been raised and actions are being taken. But much more needs to be done. The technology is advancing and countries must decide now how they will use AI. □



The Campaign to Stop Killer Robots, a coalition of 165 nongovernmental organizations, advocates for a ban on fully autonomous weapons.

Erin Yantzi was a Project Ploughshares Peace Research Intern this summer.

Has the first shot been fired in space?

Written by Jessica West



What if space has already been weaponized?

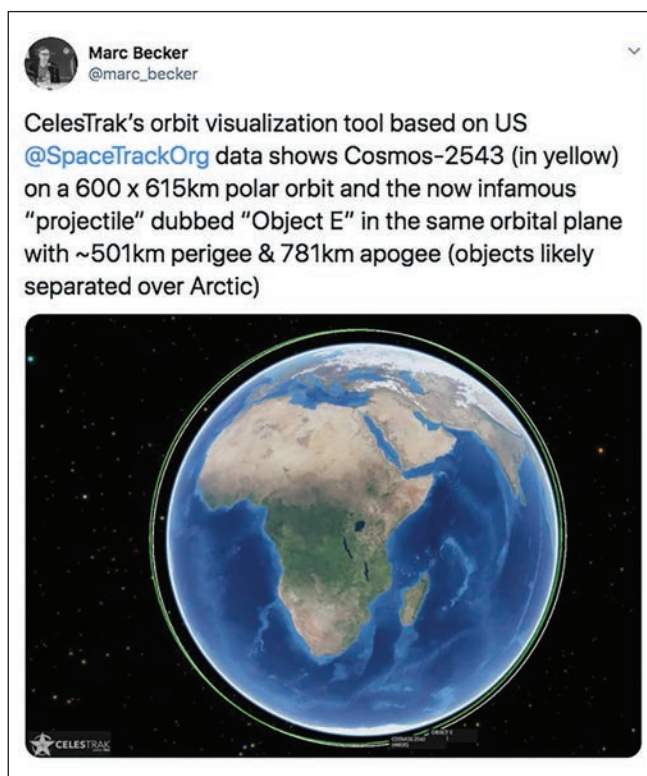
This is the claim of the United States military. Following the official establishment of the Space Force in January 2020, a new Defense Space Strategy published in June presents a strategy for “winning wars” in a domain that it depicts as “weaponized” by Russia and China. Russia and China have made similar accusations against the United States.

But despite more obvious military posturing in space, including a growing number of anti-satellite demonstrations from Earth, until recently—as far as we know—the line between political hype and the actual deployment of weapons hardware in orbit has remained uncrossed.

Then, on July 15, according to the United States and some allies, Russia fired a projectile from a spacecraft. If true, the event would be the first known test of a weapons system orbiting in space.

July 15: A shot in space?

On July 23, the United States Space Command Public Affairs Office released information that, on July 15, Russia “injected a new object [Object 45915] into orbit from Cosmos 2543” and “released this object in proximity to another Russian satellite.” This action was judged to be a non-destructive co-orbital (space-based) anti-satellite (ASAT) weapon test.



Dr. Jonathan McDowell, an astrophysicist at Harvard University, calculated that the object was released at “a fairly high relative velocity” compared to its host satellite. Public orbital information indicates that it was ejected at 700 kilometres/hour—a higher speed than would be expected if it were merely “released” into space. Because of the speed, analyst Brian Weeden

of Secure World Foundation tweeted, “That’s a projectile being fired, not a satellite deployment.” British Air Vice-Marshall Harvey Smyth posted a similar tweet.



However, according to the Russian Ministry of Defence, on July 15, “a small space vehicle ... inspected one of the national satellites from a close distance using special equipment,” providing “valuable information about the object that was inspected.” In this narrative, the object was part of a satellite-servicing or inspection capability.

Was this a weapons test?

With no destroyed target, it’s hard to say. Not all antisatellite tests are destructive. Many tests fail. And there are reasons why an actor might choose not to conduct a destructive ASAT test. One is concern for the environment; the intentional destruction of objects in orbit creates debris. A direct hit in the location of the test (500-800 kilometres above Earth) would have created a lot of debris. A non-destructive or flyby test, particularly in close proximity to other objects, still allows testing of speed, reach, and precision

of a system.

It is known that the Soviet Union developed and tested co-orbital antisatellite weapons during the Cold War. The Space Security Index has documented efforts in recent years to revive several of these legacy programs. There are plausible indications (some say evidence) that Russia’s space-based inspection program is linked to an active weapons program.

Still, there are other plausible explanations. The event could be linked to an inspection or satellite servicing experiment, as Russia maintains. It could also have been used to test sensors for applications such as missile detection. Indeed, some experts suggest that, while fast, the object travelled more slowly than might be expected of a kinetic weapons test.

Was the July 15 action legal?

Russia has stated that its actions in July “did not breach any norms or principles of international law.” If true, this is mostly because those norms and principles have many gaps.

For example, testing a space weapon is not illegal. The 1967 Outer Space Treaty, which lays out the legal principles for the peaceful use of outer space, bans the placement of weapons of mass destruction in orbit, or on the Moon or other celestial bodies. It is silent on the use of conventional weapons. Efforts to create legislation that bans such use have been stalled for almost four decades. Proposals by Russia and China for a new treaty or a political declaration have been labelled hypocritical and rejected by many Western states.

Instead of a ban, the United States and its allies emphasize the need to develop norms of responsible behaviour. Currently, however, such standards are neither well developed nor universally agreed upon.

Previous moratoria on the testing of anti-satellite weapons have been voluntary and self-imposed. They began to unravel following China’s ASAT demonstration in 2007. Any international outcry against such behaviour has focused on the production of space debris. Other norms developed to ensure the safety and sustainability of outer-space activities are relevant, but all are



Soviet Premier Nikita Khrushchev talks with U.S. President John F. Kennedy during the Vienna Summit in 1961. It is known that the Soviet Union developed and tested co-orbital antisatellite weapons during the Cold War. NASA

voluntary. And none are clearly linked to military activities.

What should the international community do?

Russia's actions on July 15 clearly disturbed some states. Could Russia have acted more responsibly to allay international fears? Absolutely. Are there clear standards and processes that Russia should have followed? No.

So, what is the solution?

Current work by Project Ploughshares on the security of outer space points to the feasibility of extending existing rules and best practices associated with safety and sustainability to military and security activities. A recent survey that we conducted of more than 100 global space experts suggests that these rules and practices—which relate to transparency, due diligence for safety, due regard for the environment, and collaboration—are both applicable and reasonable.

Practices that might have allayed concerns in July include advanced notification of manoeuvres and maintaining a safe distance from foreign satellites. In general, such measures reduce the level of threat through enhanced transparency and confidence in space activities. They also help

to reduce the chance for mishaps and misperceptions, as well as the risk of conflict escalation.

We can preserve peace in outer space

What July 15 clearly revealed was the poor state of international relations and governance of outer space. Yet another wakeup call, this event illustrates the immediate need to create better rules in space that make permitted activities more transparent, safer, and more predictable, while at the same time restricting or prohibiting activities that are dangerous and harmful.

Peace in outer space is precarious, but can be saved. As experts around the globe assert, and our current research shows, there are practical and feasible steps rooted in existing norms of behaviour that could be taken in the short term to enhance security in outer space.

Such steps would increase the transparency of military space activities and help to build the trust needed to support long-term arms-control measures. Indeed, the assertion that Russia launched an object with the “characteristics of a weapon” suggests that we may finally be ready to identify what those characteristics might be.

The time to act is now, before more shots are fired. □

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