THE **PLOUGHSHARES NOLUME 41 | ISSUE 4**

WINTER 2020



WITHOUT TRUTH THERE CAN BE NO PEACE

In a world inundated by misinformation and outright lies, you can trust Project Ploughshares to unearth the facts.

"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

WINTER 2020



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From the Director's Desk

Hope by treaty



Written by Cesar Jaramillo

n October 24, Honduras became the 50th state party to join the Treaty on the Prohibition of Nuclear Weapons (TPNW), triggering the 90-day process that will culminate in the Treaty's entry into force. On January 22, 2021, the TPNW will officially become international law.

Significant timing

The 50th ratification came on the 75th anniversary of the entry into force of the Charter of the United Nations and less than three months after the 75th anniversary of the dropping of atomic bombs on Hiroshima and Nagasaki on August 6 and 9. The TPNW's entry into force will predate by only two days the 75th anniversary of the UN's first resolution, which dealt with "the Problems Raised by the Discovery of Atomic Energy." Think of it—atomic/nuclear weapons have been in existence for three-quarters of a century.

And the threat of nuclear annihilation is growing. On January 23, the *Bulletin of the Atomic Scientists* announced that its Doomsday Clock, which signals the imminence of the threat of global nuclear catastrophe, had been set at 100 seconds to midnight—the closest ever to Doomsday. The level of threat is determined by the *Bulletin's* Science and Security Board, in consultation with its Board of Sponsors, which includes 13 Nobel laureates.

However, because of the COVID-19 pandemic, states parties to the Nuclear Non-Proliferation Treaty (NPT) postponed the 2020 NPT Review Conference, the key multilateral forum in the global nuclear disarmament regime, until 2021.

How we got here

As with the Canada-led effort to negotiate a landmines treaty two decades ago, the growing global movement that resulted in the TPNW is deeply rooted in the clear recognition of the indiscriminate, catastrophic humanitarian consequences of the use of particular weapons. While landmines still exist, their explicit prohibition has become an integral and necessary element of the framework for their elimination, and has forever raised the normative bar against their possession. The TPNW has been designed to function in a similar way.

Negotiations on the TPNW were strongly opposed by nuclear-weapon states, including the five permanent members of the United Nations Security Council (the United States, Russia, China, the United Kingdom, France), and most members of NATO, a nuclear-armed alliance that includes Canada. Although opponents claimed that such a treaty would only hurt the progress of disarmament and non-proliferation, it appears that they saw something that would impede their freedom of action.

Today, states that together own the world's nearly 14,000 nuclear weapons continue to defend and upgrade them. The world is further destabilized by the breakdown in the strategic nuclear relationship between Russia and the United States, obstacles to achieving a Mideast zone free of weapons of mass destruction, the overt nuclear deterrence policy endorsed by NATO, and the growing impatience by non-nuclear-weapon states over the lack of credible progress to nuclear abolition.

In October 2016, the United States published a non-paper entitled "Defense Impacts of Potential United Nations General Assembly Nuclear Weapons Ban Treaty" for NATO colleagues. It acknowledges that "the effects of a nuclear weapons ban treaty could be wide-ranging" and "could impact non-parties as well as parties," listing several ways in which the ban could impact NATO as a nuclear-weapons alliance.

For example, the TPNW could limit nuclearweapons-related planning, training, and transit; the freedom to assist or induce allies to use, plan, or train to use nuclear weapons; the use of nuclear-capable delivery systems; and nuclearweapons-sharing practices among NATO members. According to the United States, "such treaty elements could—and are designed by ban advocates to—destroy the basis for U.S. nuclear extended deterrence."

Earlier this year, as the trajectory toward the

50th treaty ratification became apparent, the five permanent members of the UN Security Council issued a letter to states that had joined the treaty, urging them to withdraw. In the letter, the five indicated that they "stand unified in our opposition to the potential repercussions" of the treaty.

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Getting to zero nuclear weapons

While it seems certain that the TPNW will have normative and practical value, it is difficult to predict its exact impact. But the signs are very positive for a treaty that, just over three years ago, 122 nations chose to adopt, despite widespread, ongoing opposition by nuclear-armed states and their allies.

The TPNW imposes specific legal obligations on its members, but it further extends its reach by taking control of the narrative around the legitimacy of nuclear weapons possession. Recently, for example, the Vatican made the significant leap from condemning the use of nuclear weapons to condemning "mere" possession.

Beyond the TPNW, alternative security arrangements will be necessary. As former U.S. statesmen Henry Kissinger, Sam Nunn, William Perry, and George Schultz argued in a 2007 oped for *The Wall Street Journal*, a world without nuclear weapons will not simply be today's world minus nuclear weapons.

But this recognition cannot be allowed to slide into a belief that some sort of Kantian peace or ideal international security conditions are necessary prerequisites for disarmament. Shifts in security arrangements must happen in parallel with nuclear disarmament efforts.

Non-nuclear-weapon states do not use less-



Earlier this year, as the trajectory toward the 50th treaty ratification became apparent, the five permanent members of the UN Security Council—France, China, the United States, the United Kingdom, and Russia—issued a letter to states that had joined the treaty, urging them to withdraw.

than-ideal security conditions as a reason for acquiring nuclear weapons when they have pledged not to. The same standard must apply to states that possess nuclear arms. There will never be a perfect time to achieve nuclear disarmament.

No doubt misleading arguments against the treaty will continue. It is often said that the TPNW has not resulted in the elimination of a single nuclear weapon. Why is this suddenly the standard for supporting a nuclear disarmament effort?

A legal instrument to ban nuclear weapons, however thorough or stringent its provisions, will not automatically result in fewer nuclear warheads. No proponent of the TPNW argues that the ban is tantamount to abolition.

Almost all states advocate for the pursuit of

a world without nuclear weapons—in principle. But this objective will only be achieved through concrete action that truly reflects the gravity of the nuclear-weapons threat and the recognition that concrete steps toward abolition are urgently needed. Abolition must become a top policy priority for the nations of the world, whether they have nuclear weapons or not.

The complete and irreversible elimination of nuclear weapons is an urgent and achievable objective. Regrettably, while a growing majority in the international community has embraced the historic Treaty on the Prohibition of Nuclear Weapons and the hope it embodies, countries like Canada continue to embrace NATO's overt nuclear deterrence policy as a legitimate security doctrine, effectively positioning themselves on the wrong side of history. □

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Protecting humans on Earth from war in space



Written by Jessica West

ore states are preparing for war in outer space. The result could be accelerated, intensified conflict; environmental destruction; and nuclear winter. Even if we avoid the ultimate catastrophe, the consequences of war in space are serious. The destruction of space systems would harm every human on Earth. We must start working to protect civilians on Earth from such a fate.



Our reliance on space systems

A space system is an assembly of one or more satellites and a ground station that uses communications links to collect and exchange data. There are now more than 3,000 satellites in orbit, with the number growing almost every week.

These systems form a meta-capability that enables almost all essential services on Earth. Consider cell phone connectivity, air traffic control, disaster warnings, agricultural production, electronic banking, shipping, power grids. The Internet.

But most systems that support civilian functions are multiuse and also enable warfighting capabilities—on Earth and in space. Some states operate only a few satellites, which must meet military, government, and civilian needs. Commercial satellite operators often sell their services to a variety of customers, including militaries. And some military satellites are essential to civilian life.

The United States Global Positioning System (GPS)—one of several global satellite navigation systems—is a case in point. GPS is the central nervous system of the U.S. military. It provides precision timing, navigation, and targeting capabilities to military units and weapons systems. But GPS also communicates with individual wayfinding and fitness apps, and supports global travel, financial systems, civil communications, and power grids.

Civilian GPS signals are already a target of hostile forces, even during peacetime. For example, Russia has been accused of deliberately interfering with GPS signals in Finland and Norway, threatening the safety of passengers and crew on local airlines. Such interference, while targeted and temporary, is still dangerous. A greater use



Satellite systems form a meta-capability that enables almost all essential services on Earth. Consider cell phone connectivity, air traffic control, disaster warnings, agricultural production, electronic banking, shipping, power grids. The Internet.

of force against critical military systems could be devastating.



A crowded battlefield

The outer-space environment challenges any attempt to target only military targets. The portions nearest to Earth are crowded with military, civilian, and commercial satellites. There is no separate military zone.

Outer space is fragile and unprotected. Anything that is sent into space stays there. And when those objects break apart, the clouds of bits of debris that they create also stay there. These bits can then collide with other objects in space, creating a cascade of damage that not only harms other satellites, but makes surrounding orbits unusable.

While accidental collisions can and have occurred, the intentional destruction of objects is a key source of contamination. China's antisatellite test in 2008 created the largest debris field to date. And all the pieces are still up there in space.

The benefits of space under threat

A conflict in outer space would almost certainly disable essential civilian services that rely on satellites.

Earth observation satellites monitor and track weather patterns. Their ability to detect wildfires and monitor hurricanes and cyclones makes them indispensable for disaster early warning. They are also essential for disaster response. This need is recognized by the International Charter on Space and Major Disasters, which provides satellite data to help manage disasters.

Satellite-enabled communications meet the daily needs of billions of users on Earth and are even more critical during a disaster, when other ways of communicating are lost. Global Navigation Satellite System (GNSS) signals such as GPS are critical in establishing the precise location of those in need. The Crisis Connectivity Charter is designed to make satellite-based communications more readily available during disasters to those providing humanitarian aid and to affected communities.

As well, the command and control of nuclear weapons are tied to military assets in space. Damaging those assets could trigger an accidental nuclear strike or provoke a deliberate one.

Project Ploughshares is currently leading a project to advance the development of norms in space.

Pursuing arms control in space

Arms control in outer space is a contentious international topic. Russia and China fear that the United States will develop space-based missile defences that might strike at Earth. They want a space weapons ban—although it is not clear what constitutes a weapon.

Many Western states fear that initiatives that either ban or pledge no-first-use of space weapons are open to abuse. And they don't trust Russia, which they believe already possesses a weapons capability in space that is directed at other satellites.

Meanwhile, a number of states are developing Earth-based anti-satellite weapons.

In response to all of this, the United Kingdom is championing a new initiative to reduce threats to space and the risk of armed conflict in space, by focusing on norms of responsible behaviour.

With no measures gaining consensus, civilians remain vulnerable.



A protective mesh

With no major agreement in sight, the international community, including civil society, must prepare to protect civilians through a combination of laws, norms, and practical measures.

Efforts are under way to develop appropriate legal manuals. Notable are the McGill Manual on International Law Applicable to Military Uses of Outer Space (MILAMOS) and the Woomera Manual on the international law of military space operations.

Project Ploughshares is currently lead-

ing a project to advance the development of norms in space, working with experts from around the world to identify existing safety and sustainability measures that can be used to inform security practices and reduce the risk of escalating conflict. Included for consideration are the civilian dimensions of conflict in space.

Going forward, the international community must begin work to restrict military activities that inflict indiscriminate harm both on Earth and in space, such as the intentional creation of space debris. We must develop protections for critical civilian infrastructure. And because we know that protection so often fails, we must also think about how to make our ability to use outer space more resilient. \Box

To learn more, visit our updated Space Security Index website (www.spacesecurityindex.org). Detailed accounts on outer space at this year's United Nations First Committee meeting by Jessica West are available in Reaching Critical Will's First Committee Monitor.

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Emerging technology

The third drone age



Written by Branka Marijan

ny lingering doubts about the centrality of drones in modern warfare vanished as the world watched Azerbaijani military drones inflict serious damage on the Armenian military in the recent conflict in Nagorno-Karabakh. Now some European and American defence analysts are asking if the rising use of drones is rendering some military equipment, such as tanks, obsolete.

As drones become more ubiquitous in and out of conflict zones, serious concerns about their use are being amplified in international multilateral forums. This past August, Agnes Callamard, former United Nations (UN) Special Rapporteur on extrajudicial, summary, or arbitrary executions, noted in her report to the UN Human Rights Council that the world has entered the "second drone age." Callamard joined other experts and civil society organizations in calling for stricter national and international regulation of the use and export of drones, even as they continue to evolve.

Cheaper, faster, more available

According to Callamard, the second drone age is characterized by a worrying proliferation and use, by both state and non-state actors, of more advanced drones. Accord to her report, "drones are becoming stealthier, speedier, smaller, more lethal and more easily operable by teams located thousands of kilometres away, and are therefore becoming better able to carry out targeted killings both near and far."

These increasingly sophisticated systems, particularly the ones used for surveillance, are also becoming more affordable. And some can be easily obtained. Many state and non-state actors are adapting commercially sold drones that do not have to go through the onerous military exports process. For years, drug cartels and terrorist organizations such as Islamic State have been using off-the-shelf drones for surveillance and as weapons.

The technology is developing so rapidly that it could be said that the world is moving closer to a third drone age. In this next stage, drones have significant autonomy. Will regulations keep pace or will the world soon be at the mercy of flying un-crewed weapons systems over which humans exert little control?

Suicide drones

Undergoing enhancements while also becoming more readily available are loitering munitions, also known as kamikaze or suicide drones. They differ from armed drones, which



carry munitions that they then release over targets. According to Drone Wars UK, loitering munitions "have the warhead integrated within the system and are therefore destroyed when used."

Loitering munitions are being acquired by a number of states; some states are even developing their own domestic capacity. For example, Turkish company Defense Technologies and Trade Inc. (STM) is set to deliver 500 kamikaze Kargu drones to the Turkish military. According to freelance journalist Paul Iddon, writing for Forbes.com, STM's CEO has claimed that the Kargu drones have onboard facial recognition technologies that could, presumably, be used to target individuals.

There is also evidence that non-state armed groups are gaining access to these weapons. The Houthis in Yemen have reportedly used loitering munitions to target the Saudi Patriot air defence missile systems. Such incidents show how non-state armed groups can use new technologies to challenge better equipped state militaries.

Killer swarms

A drone swarm—"multiple unmanned systems capable of coordinating their actions to accomplish shared objectives"—can overwhelm a target, clearing the way for conventional military platforms, such as crewed fighter jets. Because the drones in a swarm can "autonomously [alter] their behavior based on communication with each other," they can function without a vulnerable electronic connection with a human operator at home base. Jamming of communication between different members of the swarm is still possible, however, and is thus a vulnerability that militaries must consider.

Drone swarms are still in the testing phase. In early October, Italian arms manufacturer Leonardo, in partnership with the British Royal Air Force, successfully demonstrated a swarm, illustrating its autonomous capabilities.

We don't know how close this system and others are to deployment. But it seems likely that, as less expensive alternatives to fighter jets and other crewed platforms, drones, swarming technologies, and other "smart munitions" will remain the subjects of ongoing research and development.

These advancements raise new concerns. They erase—or at least blur—an accepted distinction between autonomous weapons with little human control and semi-autonomous drones that leave key decisions about selecting and engaging targets to humans.

Current regulations ineffective

Speaking to the Human Rights Council this past July, Callamard declared, "There are no robust

standards governing drones' development, proliferation, export, or capability for use of force. No transparency. No effective oversight. No accountability." Never very successful, existing piecemeal regulatory approaches no longer meet the needs of a world in which there is widespread use of a variety of drones by a growing number of militaries.

For example, the Missile Technology

Control Regime (MTCR), formed in 1987 and now with 35 member states, specifically restricts the export of large armed drones. Even so, the United States, a member state, recently reinterpreted the voluntary requirements and allowed American companies to begin exporting larger drones such as the Reaper and Global Hawk.

Additionally, MTCR restrictions do not cover member state Turkey's Bayraktar TB2 drone, which has been used by countries such as Azerbaijan. And non-member China has not been deterred from exporting armed drones to a number of countries, even though China has agreed to abide by MTCR guidelines.

Drones that fall into the commercial category are even less restricted. Ultimately, MTCR regulations cannot be enforced. Challenges for the new age

UN discussions on autonomous weapons, which began in 2014, have generally not focused on

There is also evidence that non-state armed groups are gaining access to these weapons. The Houthis in Yemen have reportedly used loitering munitions to target the Saudi Patriot air defence missile systems. Such incidents show how non-state armed groups can use new technologies to challenge better equipped state militaries. drones—or any particular weapon system. The understanding has been that autonomous weapons could take a number of forms and so the focus should not be on any single weapon type, but rather on a key concern: the removal of control. human The relevance of this concern becomes ever clearer as drones do more

without human control—and in greater numbers.

Clearly, there is an urgent need to regulate drone use and the exporting of drones, including commercial components and the technologies needed to run the systems. As the MTCR illustrates, current regulations don't work, aren't comprehensive, and lack enforcement mechanisms. They don't cover all relevant technologies and they don't include all users.

The challenges of the second drone age have not been addressed. Now the third drone age is raising even greater legal, ethical, and humanitarian concerns. The new era is still some time in the future and the opportunity exists to regulate proactively. But this window will not remain open for long. \Box

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APPS, LOCATION DATA,

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Phone applications (apps) can reveal a lot of information about a user, such as the user's location. User data helps companies target advertising and gain a better understanding of the products and services that will sell in an area.

> But some apps collect information that should be kept confidential. For example, Strava, a fitness tracking app, releases a heat map showing locations frequented and paths taken by the user.

Militaries also collect data on ordinary citizens. A November 2020 Vice News report revealed that the U.S. Special Operations Command bought access to a location-collecting database. Data was gathered from phone apps such as Muslim Pro, a popular app with 98 million downloads worldwide that provides information on prayer times as well as the location of Mecca.

As militaries look to AI for the next generation of weapons, they seek data

about individuals and their behaviour. Such data collection poses risks for individuals, but also raises concerns about national security. As national law enforcement agencies turn to new technologies for greater surveillance of citizens, so, too, do foreign governments. Signals intelligence, including cell phone records, has already been used in drone strikes. 5

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The location of U.S. military bases is available through satellite imagery. However, the Strava heat map showed which areas were most frequented and which routes the soldiers took. This information was released by Strava and was available for anyone to access and download. As a result, militaries have become more concerned about have become more concerned about

AND MILITARY TECH

WRITTEN BY BRANKA MARIJAN & DESIGNED BY TASNEEM JAMAL



PLOUGHSHARES AT WORK

The making of *Killer Optics*



Written by Tasneem Jamal

n September 22, Project Ploughshares released an in-depth report (available at www.ploughshares.ca) by Researcher Kelsey Gallagher, entitled Killer Optics: Exports of WESCAM sensors to Turkey – a litmus test of Canada's compliance with the Arms Trade Treaty. A synopsis of the report follows this interview.

Killer Optics received immediate and widespread coverage by Canadian and international news outlets. When, a week after the report was published, the world learned that Turkish unmanned aerial vehicles (UAVs or drones) equipped with WESCAM sensors were attacking Armenian targets in the self-proclaimed Republic of Nagorno-Karabakh in Azerbaijan, the impact of Ploughshares's research was magnified and many more eyes were cast on Canadian military export practices.

Within days, Prime Minister Justin Trudeau announced that Canada was probing allegations that Azeri forces had been using Canadian drone technology that was initially exported to Turkey. On October 5, the Government of Canada suspended military export permits for WESCAM sensors to Turkey, pending further investigation.

Ploughshares Communications Officer Tasneem Jamal spoke with Kelsey Gallagher about the genesis of *Killer Optics*, the impact of its publication, and the role of open-source data in tracking arms transfers.

Tasneem Jamal: How did you begin the research that led to this report? When did you first sus-

pect that WESCAM optical sensors were being exported to Turkey?

Kelsey Gallagher: Ploughshares has had a file on WESCAM for years as part of our Canadian Military Industry Database. WESCAM exports targeting and surveillance sensors worth hundreds of millions of dollars annually. In the summer of 2019, it became clear that these sensors were being used extensively on Turkish drones. I started really paying attention to their deployment by Turkey following Turkey's invasion of northern Syria in October 2019. The more I looked, the more it became clear that these Canadian sensors were integral to Turkey's ability to conduct airstrikes.

TJ: Obviously in-depth, data-driven reports are not new to Project Ploughshares. But what makes this report unique is the reliance on opensource data. Can you talk about how you came across this data? What are the challenges (and advantages) to its use? Aren't photographs on social media, for example, easily manipulated? What is the verification process?

KG: I initially used data that Ploughshares and other Canadian researchers have used before. This includes government and trade data, as well as notifications of arms sales published online. This data showed that Turkey was importing Canadian weapons systems, in particular WESCAM sensors, and suggested that Turkey was using them in conflict.

I also began analyzing footage of downed Turkish drones in combat zones, primarily posted on local social media. Often, the remains of Turkish aircraft included beat-up WESCAM sensors. This visual evidence reinforced existing allegations of their use by Turkey in places like Syria and Libya.

The government of Turkey also posts footage from airstrikes to "sell" the war to domestic audiences. Extensive research indicated that the

"graphical overlay" (i.e., all the instruments visible on a drone operator's screen, such as the crosshair, data pertaining to the mission, etc.) was a version that is proprietary to WESCAM. So, whenever we had the government of Turkey boasting about a recent operation in northern Syria by posting these videos online, I could conclusively say, "This was performed with Canadian hardware."

Yes, judging credibility is difficult. I've talked about this with other Canadian researchers who work to identify Canadian weapons used in conflict. There is no surefire way to confirm or deny that images posted on social media are credible. However, if I can find several photos from different sources of the same downed aircraft from several

angles and taken at different times, then I think I have credible evidence. If damage to a certain part of the aircraft is consistent across photos, for instance, then it's likely that the photos are legitimate.

Really, you have to take everything with a grain of salt, and perform your due diligence. But in my experience, photos of weapons in conflict zones are generally credible. If they do turn out to show something different than what is described, it is usually due to mistaken identification. It would be difficult to be deceptive and get away with it for long, because someone, very quickly, will call you out.

TJ: Do you see open-source data becoming more and more important in tracking arms transfers?

KG: Yes. Whole online communities are based on it. Most are not involved with the peace and disarmament movement, either. Many open-source researchers could be better described as weapons enthusiasts. These folks are usually keen to give

> feedback if you have questions about a certain weapon in a certain place.

Other civil-society groups, primarily in Europe, use open-source images, like satellite images, to monitor environmental degradation during conflict. More and more, the UN is relying on images posted online to track weapons exports. This burgeoning field of research is increasingly seen as legitimate.

TJ: You state in the report that the Turkish government frequently publishes recordings from the video feeds of UAV operations in Syria, Iraq, and Turkey on social media and Turkish media outlets. Is this unique to Turkey? Why would a government do this? What's the upside?

KG: Other countries publish images, but perhaps not to the degree that Turkey does. For instance, images of U.S. drone strikes are freely available online, and were released, in some manner, by the U.S. Department of Defense. However, Turkey has been particularly eager to publish these images online to drum up domestic support for the numerous conflicts they've become embroiled in.

Azerbaijan did the same thing during the recent conflict in Nagorno-Karabakh. I've seen photos from WESCAM video feeds, shot from



Kelsey Gallagher is a Researcher at Project Ploughshares who focuses on the Canadian arms trade.

Turkish drones, being displayed on screens in downtown Baku. This is just another example of propaganda.

TJ: How did the Nagorno-Karabakh conflict affect the impact of your report?

KG: That conflict was really the only reason we saw Canadian government action on WESCAM

exports. This was due, in large part, to a sizeable Armenian diaspora community in Canada that successfully pressured the government. Before that, we had heard nothing from Global Affairs Canada, despite some comprehensive media

If you're willing to overlook the human-rights violations of Saudi Arabia, it is difficult to think whose violations you wouldn't be willing to ignore.

TJ: When Ottawa suspended export permits for WESCAM sensors to Turkey, it was the third time in just over three years that Canada had announced the suspension of export permits to a country accused of violating international law. The first two incidents involved Saudi Arabia, the top destination for Canadian arms exports. In both cases, the suspensions were eventually lifted. And unlike Saudi Arabia, Turkey

is a NATO ally. Do you expect the suspension to be lifted in this case?

KG: It is certainly possible that the suspension of exports to Turkey will be lifted once media attention

attention on the Killer Optics report.

Unfortunately, the government doesn't seem much bothered that these sensors are being used, including in alleged breaches of international humanitarian law, across the Middle East.

TJ: What has the report's impact been in Turkey? And has WESCAM or its parent company responded?

KG: Following the suspension of exports, Turkey was quick to announce that they had begun testing domestic alternatives to WESCAM sensors. I am not convinced that they have a fully operational alternative at this time. If they did, they would have already been using it. Turkey is avid to use as much domestic technology in their weapon systems as possible, precisely to avoid relying on other countries.

WESCAM only recently broke their silence on the issue, providing a boilerplate statement in which they indicated that they had followed all necessary export regulations. This is the goto response when weapons manufacturers get caught up in these types of scandals, and is actually largely true, which speaks to why Canada needs comprehensive government regulation on the trade and transfer of weapons. dies down. The recent peace deal for Nagorno-Karabakh also makes this more likely, in my opinion. If you're willing to overlook the humanrights violations of Saudi Arabia, it is difficult to think whose violations you wouldn't be willing to ignore.

TJ: So, what comes next in your work on this file?

KG: Ploughshares will continue monitoring Canada's export of these weapons to Turkey. As noted, the exports are currently only suspended, pending the results of an investigation. We have little idea what the nuts and bolts of this investigation are. As well, Global Affairs Canada has a poor track record in indefinitely halting these exports when their misuse or their involvement in the facilitation of human-rights violations comes to light.

The model used in *Killer Optics* met with considerable success, and can be replicated with other weapons exports to other countries. Canada is exporting more weapons abroad than ever before, including to other abusers of human rights, such as Saudi Arabia, the United Arab Emirates, and Israel. We have lots of work ahead of us. \Box

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SPECIAL REPORT

Killer Optics

Exports of WESCAM sensors to Turkey – a litmus test of Canada's compliance with the Arms Trade Treaty



The following is a synopsis of *Killer Optics*, a report **written by Kelsey Gallagher** and published in September 2020. The full report is available for download at www.ploughshares.ca.

3Harris WESCAM, the Canadian subsidiary of U.S. defence giant L3Harris, is one of the world's leading producers and exporters of Electro-Optical/Infra-Red(EO/IR) imaging and targeting sensor systems, with approximately 500-million CAD in annual exports. Its products are used in more than 80 countries on more than 190 platforms, primarily to perform intelligence, surveillance, target acquisition, and reconnaissance.

At their most basic, EO/IR systems are cameras that capture images across varying spectrums of light. EO/IR sensors are commonly fixed to vehicles and relay a live video feed to an operator. Also used in law enforcement, search and rescue, and media production, most are found in military applications. Unmanned aerial vehicles (UAVs) require EO/IR sensors to facilitate and conduct airstrikes.

Selling arms to Turkey

Since 2017, Turkey has become the second largest customer for WESCAM products, after the United States. Turkey has developed an indigenous UAV industry and is also working to provide indigenous EO/IR units. However, it is expected to be several years before they can begin to replace WESCAM units. At present, Baykar, the manufacturer of Turkey's most popular UAV, the Bayraktar TB2, lists WESCAM as their sole EO/IR provider.

In the last several years, the Turkish military has been active in trying to put down an insurgency in southeast Turkey, and has also become increasingly involved in armed conflicts in Syria, Iraq, and Libya. Reliable evidence strongly indicates that WESCAM EO/IR sensors, mounted on UAVs, have been used extensively by Turkey in these recent military operations.

Some of Turkey's actions have drawn severe rebukes from the international community.

For example, in October 2019, Turkey, along with allied militias under its command, launched Operation Peace Spring in northern Syria. The primary targets were the Syrian Democratic Forces and Kurdish People's Protection Units in Rojava. UN experts estimated that approximately 180,000 people, most Kurds, were displaced in the operation's first two weeks, to be replaced by Sunni Arabs. A number of experts, including U.S. diplomats, characterized the apparently planned displacement as ethnic cleansing. Turkey has also been accused of offensive use of white phosphorus against civilians, which some call a war crime. Many of these actions, if proven, constitute violations of international humanitarian law (IHL).

Turkey was immediately condemned by the Eu-



ropean Union for this "unilateral military action" and many countries, including Canada, imposed a weapons embargo on Turkey.

Responding to military aggression

Global Affairs Canada (GAC) determined that Turkey's actions could risk "undermining the stability of an already fragile region, exacerbating the humanitarian situation and rolling back progress achieved by the Global Coalition Against Daesh." In April 2020, the Canadian arms embargo was indefinitely extended. The principled and proactive freeze on Turkish-bound exports was seen as a positive example of Canada's arms-control regime working as it should.

In response, Turkish officials frantically pressured Ottawa to allow an exemption, explicitly for WESCAM sensors. This past June, media reports indicated that GAC had indeed granted a special exemption for WESCAM products. The Canadian government has yet to offer a reason for the decision.

Meanwhile, in February 2020, Turkey made its fourth incursion into Syria since 2016, in retaliation for the killing of 34 Turkish soldiers by Syrian government forces. Unconfirmed reports from the Turkish government claim that the Turkish armed forces destroyed more than 100 tanks and armoured vehicles, killing three top generals and more than 2,200 Syrian soldiers. This operation has been characterized as the first time that Turkey relied on UAVs as the dominant offensive tool.

As well, this year Turkey began conducting airstrikes on Libya with approximately a dozen TB2 UAVs fitted with WESCAM MX-15D units. Because the UAVs are frequently lost or damaged in combat, they must frequently be replaced, which could partly explain ballooning exports of Canadian EO/IR systems to Turkey.

Canada's legal obligations

Canada has continued to export arms to Turkey, despite acceding in 2019 to the Arms Trade Treaty (ATT), the first binding framework that aims to regulate the international trade and transfer of weapons, and reduce the human suffering posed by their proliferation. Under the ATT, as well as Canada's Export and Import Permits Act, Canada has an obligation to assess the potential that weapons exported abroad could pose a substantial risk for human-rights violations under international humanitarian law or international human-rights law, could contribute to gender-based violence, or threaten regional peace and security.

Canadian officials apply the "substantial risk test" to determine the likelihood that an export "would result in any of the negative consequences referred to in the ATT assessment criteria." With



Screenshot from video feed of the targeted killing of PKK member Ismail Özden in August 2018, with WESCAM graphical overlay visible. Video originally published by Turkish public broadcaster Anadolu Agency.

UAVs now ubiquitous in Turkey's military operations in the region, and the Turkish military's reliance on WESCAM EO/IR systems in its UAVs, it is clear that the continued export of WESCAM sensors to Turkey poses a substantial risk to peace and security in the Middle East and North Africa. When evidence of Turkish violations of IHL is considered, it must be concluded that there is a clear and demonstrable substantial risk that the further export of WESCAM sensors to Turkey could cause harm to civilians and facilitate breaches of IHL.

Canada must also assess the potential that weapons exported abroad could be diverted to an illicit end use or end user. Turkey's recent export to Libya of TB2 UAVs—and therefore of WESCAM MX-15Ds—is a textbook example of diversion.

Condemned by its own words

In April 2020, Global Affairs Canada released its *Final Report: Review on Export Permits to Saudi Arabia*, in which it justifies easing the freeze on new weapons export permits to Saudi Arabia that was imposed following the assassination of Saudi journalist Jamal Khashoggi and mounting claims of IHL violations by Saudi security forces in Yemen. The report argues that evidence of Saudi breaches of IHL primarily relate to airstrikes. Therefore, the continued export of Canadian light armoured vehicles—the main focus of the report—did not pose a substantial risk under Canada's assessment criteria and could resume.

This understanding of risk is problematic, implying that substantial risk can only occur if there is clear and duplicated evidence that IHL violations were facilitated with the exact weapon system exported. However, GAC's assessment is significant in the case of Turkey, because the report supports the idea that aerospace exports pose a substantial risk when the recipient's air force is engaged in activities that violate international humanitarian law. Using this logic, it appears that the export of WESCAM systems to Turkey contributes to the violation of IHL and that these exports should thus be halted.

Based on Project Ploughshares's reading of the ATT, interpretation of domestic arms controls, and analysis of Turkey's recent conduct during warfare, we believe that the continued export of WESCAM sensors to Turkey poses a substantial risk of facilitating further harm. Thus, we conclude that Canadian officials are obligated by international and Canadian law to mitigate the risks of such transfers, up to and including the cessation of future WES-CAM and related exports to Turkey. □

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Canada remains silent on illegal Canadian weapons in Libya



Written by Kelsey Gallagher

n October 5, under mounting pressure from civil society and the Armenian diaspora community, Global Affairs Canada (GAC) suspended exports of Canadian-made L3Harris WESCAM surveillance and targeting sensors to Turkey. These sensors had been found on Turkish-made Bayraktar TB2 unmanned aerial vehicles (UAVs or drones) that were illicitly diverted to Azerbaijan by ally Turkey for use in the Nagorno-Karabakh conflict.

But, while GAC acted swiftly in this case, it continues to ignore a serious instance of illegal arms exports to Libya.

WESCAM sensors in Libya

Last year, in a blatant case of illegal diversion, Turkey began supplying Bayraktar TB2 UAVs equipped with WESCAM sensors to allied rebel groups in Libya. These UAVs have been used extensively against opposing groups, with some airstrikes reportedly leading to civilian casualties and the destruction of civilian infrastructure.

Project Ploughshares reported on this activity this past September, with no response from the Canadian government. However, as a state party to the international Arms Trade Treaty, Canada is obligated to stem the diversion of its weapons, ending arms exports to offending parties, if necessary. Since 2011, Libya has also been under a United Nations (UN) arms embargo, which prohibits any external actor from supplying weapons—including combat sensors—to any group in Libya. Under the United Nations Act, UN member states must investigate allegations that their weapons are being used in breach of an existing embargo, take action to end further violations, and, if necessary, prosecute offenders.

Libya: A nexus of the illegal arms trade

Libya, once one of Africa's most developed nations, has been wracked by violent armed conflict since 2011, when dictator Muammar Gaddafi was overthrown and civil war broke out. It has since become one of Africa's premier sites for proxy wars. UN Deputy Special Representative for Political Affairs in Libya Stephanie Williams has described the country as "an experimental field for all kinds of new weapons systems."

According to the UN, between April and December 2019, the arms embargo was violated at least 45 times. The dumping of massive amounts of weaponry into Libya by foreign actors has been established as a principal reason for continuing hostilities. The main suppliers are Turkey and the United Arab Emirates, which procure many of these weapons from Western suppliers.

Canada's role in Libya

As part of a NATO force, the Canadian Armed Forces played a critical role in Gaddafi's ousting, participating in an extensive aerial bombing operation against regime targets. Ironically, during the operation, Canada helped to establish a nofly zone to enforce the arms embargo Canadian weapons have since repeatedly violated.

In the months following Gaddafi's ousting, then Minister of Foreign Affairs John Baird

In 2016, a UN report claimed that more than 200 armoured vehicles manufactured by the Canadian-owned Streit Group had been illicitly transferred to groups in Libya between 2012 and 2014.

pledged \$10-million to secure weapons stockpiles, claiming that de-arming and demobilizing "heavily armed rebels is a way for Canada to contribute to Libya's [post-Gaddafi] reconstruction." Since then, the Canadian government has frequently called for a cessation of hostilities and support from the international community to "work toward achieving lasting stability, peace and prosperity for the benefit of all Libyans."

On the ground in Libya, other Canadian influences have been felt.

In 2011, there were reports that small UAVs manufactured by Waterloo, Ontario's Aeryon Labs Inc. were being used by rebel groups to surveil government troop positions. The initial story was overwhelmingly positive: a small Canadian tech company was helping rebels overthrow a dictator.

However, it soon became clear that the provision of this technology (which is conventionally exported as a commercial rather than a military good) breached the UN arms embargo and an RCMP investigation was initiated. The results were never made public. However, the European Parliament later singled out these Canadianmade drones for breaching the embargo. In 2016, a UN report claimed that more than 200 armoured vehicles manufactured by the Canadian-owned Streit Group had been illicitly transferred to groups in Libya between 2012 and 2014. According to media reports, shipments continued in 2015.

Streit was quick to point out that the vehicles were actually manufactured in the UAE. The use of offshore production is a loophole used by some manufacturers to avoid domestic regulations.

Streit has employed the same practice when exporting armoured vehicles to Sudan, South Sudan, and Saudi Arabia.

The RCMP conducted a "review" of the allegations against Streit, but no conclusions have been made public.

Ending Canada's silence on Libya

The suspension of WESCAM exports to Turkey marks a recent victory for the Canadian peace movement. Now Canada must use this action to create a new norm.

GAC must rigorously pursue allegations relating to Canadian arms that end up in Libya—and also those used in countries such as Yemen and Syria. In all these locations, security forces have been accused of violating human rights, very possibly with the aid of Canadian weapons. Canada must own up to its responsibilities.

Last year, Canada exported the most weapons in its history, almost certainly valued in excess of \$5-billion. With increasing exports comes a greater responsibility to ensure that all national regulations and international laws that relate to their trade and transfer are obeyed.

As the recent Ploughshares report on WES-CAM exports to Turkey reveals (see summary in this issue of *The Monitor*), there are serious gaps in current Canadian arms export regulations. Canada's assessment of risk should be expanded, and the results of assessments must be respected.

It is time for the Canadian government to acknowledge its material contribution to conflict abroad. And it is more than time to do something concrete and substantial about the harm that results. Abiding by domestic and international law is a good place to start. \Box

UN First Committee

Joint Statement on Outer Space



This statement was drafted on behalf of civil society by Project Ploughshares Senior Researcher Jessica West. Dr. West presented it to the United Nations General Assembly First Committee for Disarmament and International Security on October 13, 2020.

Mr. Chair,

We have just marked World Space Week, designated by the United Nations to celebrate the contributions of space to the betterment of humanity. This year's theme is "Satellites Improve Life." Never has this been more evident than during the Covid-19 pandemic, when satellite communications have become a universal lifeline in a time of physical separation.

Today, our dependence on space is matched by its growing vulnerability to the use of weapons and the conduct of warfare.

While the international community has struggled to preserve outer space as a peaceful domain free of weapons, an arms race has been bubbling beneath the surface.

We know that electronic warfare – the jamming of satellite communications – is rampant.

We have witnessed three states demonstrate a hit-to-kill anti-satellite capability using groundbased weapons systems; this capability is not limited to these actors.

There is evidence that the development of other anti-satellite capabilities such as directed energy weapons is accelerating.

And there are suggestions that satellites with weapons capabilities may already be in orbit.

These actions threaten war. No one wants it, yet multiple states are actively preparing for it. The risk of unintentional conflict through mishaps, misinterpretations, and miscommunications is great.

Diplomatic action is needed.

At this Committee, support for the Prevention of an Arms Race in Outer Space – PAROS – remains strong. But the divides over how to implement this objective – whether through legal restrictions, political commitments or normative understandings of responsible behaviour – remain equally strong. These are not mutually exclusive options. None can progress without efforts to enhance trust and transparency.

It's time to reset the conversation. A new initiative by the United Kingdom to support "a global discussion to avoid conflict in space" is welcomed. By asking what kind of behaviours or activities in space seem threatening, there is an opportuBeyond these political commitments, there is a clear need for states to lead through example: to refrain from testing weapons systems targeting space, to bring greater transparency to military activities, to demonstrate the type of behaviours in outer space that contribute to stability and peaceful uses, and to call out those who violate these principles.

Any use of force in outer space would be difficult to contain. There is no separate zone in outer space for warfighting: the whole domain would become the battlefield. It threatens thousands



nity to find common ground and to avoid slipping into unwanted military confrontations. But success will depend on good-faith participation, as well as a willingness to listen. These are qualities that should be applied to all initiatives.

It is in this spirit that we also urge states to:

1. Oppose the use of any space-based or groundbased capabilities to deliberately disrupt, damage or destroy space assets.

2. Indicate support for an agreement to prevent an arms race in outer space, and for necessary transparency and confidence-building measures towards that end. of satellites, connected to billions of people all around the world. It risks mass contamination of a fragile environment. And it has the potential to spill over into other domains. We cannot wait for a crisis to act.

Signed:

Project Ploughshares Women's International League for Peace and Freedom Canadian Pugwash Group Rideau Institute

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