BALSILLIE SCHOOL
OF INTERNATIONAL AFFAIRS

Aftershocks

2022 Global Trends Report

An Anthology of Briefing Notes by Graduate Fellows at the
Balsillie School of International Affairs

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Global Affairs   Affaires mondiales
Canada   Canada

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Introduction

An "aftershock" is "a smaller earthquake following the main shock of a large earthquake." Aftershock is an apt descriptor for the state of the world in 2021. If 2020 was defined by the large earthquake that was the Covid-19 pandemic, then 2021, metaphorically speaking, consisted of a series of smaller but no less consequential earthquakes whose reverberations will continue to be felt for years to come.

Perhaps the most shocking of the quakes was the brazen storming of Capitol Hill by hundreds of supporters of President Donald Trump on Jan 6, their intention to prevent Congress from validating the electoral college results of the 2020 presidential election, and in doing so challenged the very notion that America's greatest strength as a democracy was its tradition of a peaceful transition of power. Also that month, dissident Alexie Navalny, who the year before had been poisoned for exposing corruption in Russia, returned home, only to be arrested and imprisoned upon his arrival, prompting international condemnation from leaders throughout the West. The Covid-19 global pandemic still raged across the globe, but the arrival of a handful of vaccines brought a measure of normality to people's lives, at least for those fortunate enough to reside in advanced economies that were able to secure the bulk of the supply. In May, a new round of conflict erupted in Israel that lasted eleven days following the eviction of Palestinians from their homes living on dispute land, in which mobs roamed the streets, Hamas fired rocket attacks, and the Israeli military launched airstrikes, all of which raised doubts about whether the two sides might ever be able to co-exist peacefully. In July, Haitian President Jovenal Moïse was assassinated in his home by mercenaries from Colombia, prompting further turmoil for the tiny Caribbean island nation already grappling with high levels of gang violence and political discord. In late summer, Lebanon's currency collapsed, precipitating the worst economic crisis in the country's history and massive shortages of food, medicine and other basic goods. In September, the United States and its allies commemorated the twentieth anniversary of the attacks on 9/11, while only a few weeks earlier President Biden made the difficult and painful – not to mention controversial – decision to end the two-decades old war in Afghanistan, the consequences of which – both intended and unintended – are still unfolding and will be for quite some time.

Canada also experienced its fair share of aftershocks. Ottawa had high hopes that the arrival of President Biden in the White House would allow for a much-needed reset to the Canada-US relationship following four years of volatility during the Trump administration, but within days of taking office the President issued an executive order cancelling the Keystone XL pipeline, suggesting that while the tone in Washington may have changed, good relations between neighbours was far from assured. The vaccine rollout in the early months of the year got off to a very rocky start, and although by late-Spring Canada would boast one of the highest vaccination rates in the world, vaccine hesitancy rates remained stubbornly high, so much so that various institutions throughout the country had to impose vaccine mandates in order mitigate the fallout from the fourth wave of the disease. But the biggest shock of all was the discovery in late-May of 215 unmarked graves of Indigenous children attending the residential school in Kamloops, British Columbia, a discovery that not only drew condemnation from all corners of the globe, but shattered any illusion that the Canadian state and the churches that ran the schools were only guilty of having committed a cultural genocide.

To continue the metaphor, the primary aim of this year's student anthology, *Aftershocks: 2022 Global Trends Report*, is to offer ideas to help Canada find more solid footing on the world stage. The volume is the final product of the 2020-2021 Graduate Fellowship program, a professional

development program that the Balsillie School runs in partnership with Global Affairs Canada (GAC).

Aftershocks consists of eleven briefs and is divided into three sections. *Section 1: Alliances and Rivalries*, includes four briefs that explores ways in which Canada can strengthen multilateralism while navigating a global order that is increasingly being defined by great power rivalry between the United States and China. *Section 2: Insecurity* contains three briefs focused on strategies and initiatives Canada can adopt to improve the human security of vulnerable communities that have been affected disproportionately hard by the pandemic. Finally, *Section 3: Governing Technology* consists of three briefs that propose different approaches Canada can take to help ensure that new technologies – including technology in outer space – are governed according to established human rights principles, and that their applications benefit all of humanity, not just the powerful.

This anthology – the fifth in the series – is the product of the hard work of so many people without whom the fellowship program would not be possible.

First and foremost, I would like to thank the many GAC officials who served as discussants for the briefing notes, and whose feedback was absolutely invaluable. It has been an honour and privilege to work with all of you. Special thanks are in order for colleagues in Foreign Policy Bureau – specifically to John Kotsopoulos, Manuel Mulas, and Martin Roy – for their many contributions to the BSIA-GAC partnership, a partnership that began in the summer of 2015 and has only gotten deeper and more robust. All of us at the School are so grateful to have such great friends in Ottawa.

I would also like to thank the many BSIA faculty, mentors, PhD students and staff who led each of the teams. This anthology is a testament to your support and dedication to the program.

Thank you to our copy editor Nicole Langlois and graphic designer Melodie Wakefield for their work in getting this anthology to press. You have both done an absolutely fabulous job for us.

Finally, a tremendous thanks and congratulations to our graduate students for producing such high-quality briefs despite being entirely remote for their master's programs. We know that 2020-2021 was a difficult year on so many levels. The superb work that you did throughout every stage of the program is a testament to your perseverance and talent. Bravo to all.

Ann Fitz-Gerald
Director, BSIA

Alliances and Rivalries

Canada's Future Multilateral Pathway: Interest-Based 'Like-Mindedness'

Douglas Baba, Kestrel DeMarco and Ivy Muriuki

Issue

Canada's long-time like-minded partners are diverging on political and economic values, with implications for Canada's multilateral approach to coalition-building and like-mindedness over the next 50 years.

Background

Historically, Canada's multilateral engagement has manifested through the promotion of shared values such as peace and security, international development, democracy, human rights, and the rule of law.[1,2] Since serious discussions on Canadian foreign policy arise most often in contexts where Canadian interests are threatened, Canada's post-World War II historic focus on "peacekeeping" and other values-based postures has historically diminished in these contexts. For example, in adherence to the re-organization of global interests around post-2003 anti-terrorism efforts, and under the Harper administration, Canada veered more towards interest-based multilateralism.

Since the election of Trudeau in 2015, Canada has projected a renewed commitment to multilateralism.[3] Guided in part by Canada's strategic interaction with the United States (US) and a renewed sense of disillusionment with formal multilateralist structures under President Trump, Canada was forced to focus on more tangible and absolute gains.[4] A heightened reliance on informal settings for multilateral dialogue signalled the emergence of minilateralism and microlateralism[5] geared around four key geopolitical regions: the US, Russia, China (and the broader Indo-Pacific region), and the European Union (EU). There has also been a renewed sense of engagement in other subregions, especially in the developing South.[6] This push for diversification better aligns Canada with some of its European partners, like Norway and the United Kingdom (UK), which have large overseas development commitments.[7] Since Canada's strength comes from its partnerships, acting in concert with its like-

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1   This engagement grew in the 1950s and 1960s, peaked in the 1980s, and then gradually slowed. From the late 1990s to 2006, Canada re-asserted itself internationally through both its human rights and climate change agendas.

2   Given Canada's limited influence and capacity as a middle power, in 2003 a Canadian foreign policy review called for an examination of Canada's emphasis on the projection of values abroad and recommended the prioritization of Canadian national interests (Stairs et al., 2003).

3   For example, this return to multilateralism can be seen in Canada's re-engagement at the United Nations (UN) and its participation in climate agreements.

4   This disillusionment can be seen, for example, in the World Health Organization (WHO) and the World Trade Organization (WTO).

5   Naim, M. (2009).

6   In Canada's case, for example, in Indonesia, Vietnam, and Jamaica.

7   Though Canada's engagement in emerging economies is often motivated by the desire to promote democratic values, it can also be motivated by national interest. Canada's activities in Senegal and Ethiopia, for example, were part of its bid for the UN Security Council seat (Cullen, 2020).

minded partners strengthens not only Canada's reputation, but its ability to influence national policies of emerging powers.[8]

The interpretation of values and trade-offs between values and national interests

National interests derive from the interpretation of values. Thus, multilateralism can be understood as the projection and pursuit of those values abroad. While values are often discussed in a universal sense, the translation of values into interests is not universal, even among like-minded partners. In Canada's case, there is generally a tight connection between the values it promotes, its multilateral aspirations, and how it interprets opportunities and challenges. This approach relies on a strict interpretation of values and may limit room for agility and flexibility in the pursuit of multilateral interests.[9] Furthermore, Canada's more absolutist and reactive approach may not always intersect well with the countries Canada must engage with, which may take a more pragmatic and proactive approach. For example, though the UK promotes human rights in its relations with China, it also seeks to engage China for its economic interests. In contrast, it appears unlikely that Canada will engage meaningfully with China until the "two Michaels" return to Canada.[10] As another example, the EU has collectively expressed criticism of Saudi Arabia's human rights record, yet EU-Saudi relations are dominated by interest-based bilateral relationships with the UK and France.[11] In contrast, Canada-Saudi relations worsened when Saudi retaliated against Canada for publicly criticizing its human rights record.[12] As a final example, Canada has limited its relationship with Russia, whereas many Western European countries have opted for a strategy of "selective engagement."[13]

Increasingly, trade-offs must be made between interests and values. For example, the Biden administration recently announced its support for lifting intellectual property patent protections so that Covid-19 vaccines could be produced globally, despite its generally 'pro-patent' stance. Understanding how trade-offs between interests and values are managed by Canada's existing and potential partners would support a better understanding of like-mindedness.

The detail of national interests

One measure of like-mindedness is how national interests are articulated through foreign policy. Canada is like-minded with its partners in many ways, but where it diverges from them is significant. The US, for example, places less of an emphasis than Canada does on the preservation of the rules-based order, because it wants to retain the flexibility to act according to its own interests whereas as a middle power, Canada depends greatly on the predictability of a rules-based order.[14] Like-mindedness is also affected by a country's size, power, and geography. For example, though Japan and Canada share many values such as democracy and rule of law, Japan's interpretation of these values reflects its regional concerns in a way that diverges from Canada.[15] As another example, the inclusion of China in the Regional Comprehensive Economic Partnership (RCEP) free trade agreement demonstrates how Asia-Pacific states, including Australia and Japan, may prioritize economic relations over security concerns.[16]

The importance of shared values to Canada's global image is evident in the emphasis placed on them in Canada's 2021-2022 developmental plan[17] in which Canada's interests are not as clearly articulated as either the UK or Japan's interests in their respective foreign policies.[18,19] For example, in its security review, the UK clearly identifies the specific threats posed by China and Russia to its own interests.[20] It also articulates its ambition to achieve global leadership in various sectors, and the steps it will take to achieve this. For its part, Japan emphasizes threats

8   Keukeleire, S. and Hooijmaaijers, B. (2013).

9   Chrystia Freeland's 2017 foreign policy speech exemplified Canada's failure to clearly express a plan for pursuing interests (Global Affairs Canada, 2017).

10   The arrests of Michael Kovrig and Michael Spavor, both Canadian, in December 2018 were seen by many as retaliation by China for the arrest of Meng Wanzhou in Vancouver. So far, there has been no verdict in either case, and both their trials are closed to the public and the media. For further reading, see: https://www.cbc.ca/news/world/trial-michael-kovrig-china-1.5958648.

11   Oppenheim, B. (2019).

12   The Canadian Press (2019).

13   Gressel, G. (2021).

14   "American Leadership" (2020).

15   "Diplomatic Bluebook" (2020).

16   Reeves & Horton (2021).

17   "Departmental Plan 2021-2022" (2021).

18   "Global Britain in a Competitive Age" (2021).

19   "Diplomatic Bluebook" (2020).

20   Fitz-Gerald & Segal (2021).

to the rules-based order and regional issues, especially regarding its relationship with China, and clearly identifies how these affect its interests. The Biden administration has been similarly clear in its articulation of threats to its national interests. In its recent security plan, the US emphasizes the fundamental link between economic and security interests, framing economic security as national security, and explicitly linking American leadership, the renewal of alliances, and other goals to the pursuit of American interests (e.g., investing in economic development overseas to create new markets for American products and reduce the likelihood of instability).[21]

The practice of national interests

Like-mindedness should be measured not just in terms of how interests are detailed, but how they are practiced. One indicator of how interests are practiced is how civil society functions.[22] Specifically, key considerations are whether the practice of civil society is encouraged; the general pillars of civil society's mandates; how civil society operates; and how its outputs are used by government. An analysis of these four considerations across a sample of countries, which include some of Canada's closest allies, emerging partners, and difficult partners, indicates that while civil society may be encouraged in each country, the rules and norms under which civil society functions vary across the countries. These rules and norms usually relate to funding sources, the independence of the research conducted, and the relationship civil society has with government. While civil society organizations are an interlocuter between the people and the government, there are indications that in some cases, their outputs are more for government consumption than for popular consumption.

Some civil society group mandates are less about promoting specific research themes and more about promoting values and principles. For instance, in the UK and Canada, there appears to be a focus on the principles of good governance – such as transparency, accountability and fairness – and, in addition to research on the content of government policies or general government policy direction, useful tools to support the realization of these principles. When the pillars of civil society are focused more on process than on content, like-minded tools are developed and socialized within those societies much in the same way that they are at the government level. On the other hand, in countries like China where the focus appears to be more on thematic-based research areas, there may be an absence of tool kits to ensure that the outputs of civil society are optimized. Such thematic-based approaches risk only reinforcing government policies and research agendas without critically challenging them at either the strategic policy or program levels. In such scenarios, the civil society "interlocuter" may ultimately serve to reinforce the position of the government, rendering it more 'quasi-governmental' in nature.

Arguably, a purely principles-based approach to challenging governance and policy issues raises the opposite problem: civil society may fail to meaningfully inform government priorities identified as key to the national interest. For countries like Canada with comparatively less international strategic intelligence gathering capability and a more domestic-focused intelligence function, policy-relevant input from civil society is critical. This analysis revealed that the UK experience appears to address these opposing risks by balancing a close civil society interface aligned with government priorities with an ongoing commitment to principle-based approaches to support the transparency and accountability of both government and civil society.[23] Japan also appears to take a more balanced approach to supporting both policy content and policymaking tools and processes.

In Canada, there are indications that civil society activity has a comparatively weak alignment with government themes. The absence of codified national security/foreign policy strategic priorities and supporting objectives further challenges this alignment. Clarity on both policy priorities and supporting objectives could enable a more productive alignment between governmental priorities and civil society mandates. This would, in turn, serve to further the pursuit of Canadian interests in practice. It would

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21 Biden (2021).

22 According to the World Bank definition, civil society refers to "community groups, non-governmental organizations [NGOs], labour unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, and foundations" (Jezard, 2018).

23 Since 2010, the UK Government has recruited 'deployable civilian experts' who are retained by government, given mandatory annual training, vetted through security clearance processes and regularly drawn down by government offices to provide advisory services, undertake desk-based research and/or engage in-country. The outputs produced by this cadre of experts include tools and methodologies as well as issue-based (thematic, regional, country-based) studies.

also ensure that focused and critical research continues to maintain Canada's relevance at the international table. Maintaining 'relevance' is key for a middle power country vying to retain its strong middle power status.

Thus, an analysis of the actual 'practice' of national interests in other countries, focusing on the nature and functioning of civil society, provides some insights into how tensions and trade-offs between national interests and values may be managed by national governments. As discussions on interests and values become more universal, and as trade-offs and tensions between interests and values become the norm, the actual practice of the pursuit of national interests provides a useful indicator of true like-mindedness. Building coalitions around a more practical form of like-mindedness would assist Canada in both formal and informal multilateral interactions and inform where new and reconfigured multilateral investments are required. By providing Canada with a stronger ability to predict how its partners are likely to respond to global changes, it would also enable Canada to bring stronger leadership and a more strategic perspective to multilateral discussions. Finally, it would reveal the extent to which Canada's partners are willing to make significant trade-offs between their interests and values.

Recommendations

1. Clarify specific national interests which reflect the uniqueness of Canada's position in the world and help define the space for manoeuvrability.

2. Include 'supporting objectives' under each foreign policy priority in order to link these critical enablers of broader policy goals to civil society mandates.

3. Build on this exercise looking at the functioning of civil society in other countries to evaluate how interests are practiced and how tensions between interests and values are managed.

4. Foster a stronger relationship between Global Affairs Canada and leading civil society organizations by developing two groups of civil society experts: One to be kept on a database and engaged with regularly and one that includes those free to travel overseas.

5. Have Canadian embassies gather strategic intelligence on the functioning of civil society overseas to inform Canadian foreign policy implementation.

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Navigating the Geopolitics of the UnitedStates, China, and Russia on Maritime Security in the Arctic

William Gillam, Eric Denyoh, Rahul Gangolli, and Christian Hauck

Issue

Canada requires a strong foreign policy to manage the maritime security competition between the United States, China, and Russia in the Arctic region to ensure Canada's interests are protected.

Background

Competing interests and powers in the Arctic are likely to exacerbate militarization within the region. Unfortunately, there is a lack of institutional strength amongst Arctic States and Communities to tackle hard security matters. The leading multilateral institution in the region is the Arctic Council, a forum established in 1996 to promote cooperation between Arctic States. Full membership includes all eight Arctic states (Canada, Russia, United States, Denmark, Norway, Iceland, Sweden, and Finland), with permanent participation given to six indigenous groups. Currently, there are 13 Non-Arctic States given observer status who can attend Council meetings. However, these states have no voting rights. The mandate of the Arctic Council is to "provide a means for promoting cooperation, coordination and interaction among the Arctic States, with the involvement of the Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection

in the Arctic" (Arctic Council 1996). The mandate's emphasis on sustainable development and environmental protection are noteworthy given that the Arctic Council specifically excludes military matters. This was done to prevent conflict related politics muddling their efforts and to promote peaceful activities in the Arctic. While the Arctic Council has been highly successful in their efforts, the militarization of the Arctic is still ongoing. In an effort to engage in dialogue regarding hard security matters the Arctic Security Forces Roundtable was established. While originally beneficial, this informal roundtable lacks the institutional strength to manage the complex geopolitics of the region. For example, Russian membership was rejected following their annexation of Crimea in 2014 (Zandee and Kruijver 2020). It also excludes indigenous communities from the discussion despite these populations being most likely to be impacted by increased military activity in the region. With this lack of institutional strength to tackle hard security issues, there are fears that an Arctic Cold War will form in the future. Central to these concerns is China, who following their admittance to the Arctic Council as an observer in 2013, quickly established their presence as a major player in the region's geopolitics (Bennett 2015).

Considering themselves a "Near-Arctic State" China believes it is within their rights to participate in Arctic discourse, policy, and research along with the benefits it

has to offer (People's Republic of China 2018). In 2018, Beijing released a white paper articulating their policy positions and intentions with the Arctic (People's Republic of China 2018). This plan involves five comprehensive policy stances:

- deepening the exploration and understanding of the Arctic;

- protecting the eco-environment of the Arctic and addressing climate change;

- utilizing Arctic Resources in a Lawful and Rational Manner;

- participating Actively in Arctic governance and international cooperation;

- promoting peace and stability in the Arctic.

These policies specifically outline China's intention to create a "Polar Silk Road" through developing infrastructure for Arctic shipping routes and promoting development of Arctic resources. While the Chinese Arctic Policy promotes peace and cooperation, past Chinese scholarship and intermittent official posture have reflected a more belligerent position on neutrality with Arctic matters (Canadian Security Intelligence Service 2013; Jakobson 2010; Lasserre 2010). One scholar, Guo Peiqin, declared that "any country that lacks comprehensive research on Polar politics will be excluded from being a decisive power in the management of the Arctic and therefore be forced into a passive position" (Jakobson 2010, 7). Han Xudong, a People's Liberation Army Senior Colonel, warned that the use of force cannot be ruled out when it comes to the complex disputes of sovereignty in the Arctic (Jakobson 2010).

To support its fast-growing industry, China has become a significant investor in resource extraction worldwide and has shown a strong interest in the Canadian Arctic. This was demonstrated by a recent attempt to purchase a gold mine in Nunavut (Oddleifson, Alton, & Romaniuk 2021). China's resource development falls in line with Beijing"s published Arctic Policy which aims to develop the necessary infrastructure for a 'Polar Silk Road' as the region becomes more accessible for economic development and trade (People's Republic of China 2018). Arctic States led by the United States, Sweden, Denmark, and Norway, however, have raised concerns over China's involvement in the region (Lackenbauer et al. 2018). Citing China's pattern of aggressive behaviour in the South China and

East China Seas, these states believe China is a threat to any rule-based international order in the Arctic. Canada, Russia and the United States, being the major military powers in the Arctic, will need to effectively maneuver through the complex geopolitics generated by China's newfound presence to prevent future conflict.

Likely in response to China's Arctic Policy, the United States Department of Defense provided an updated report to the United States Congress on the state's continued invested interests and goals in the Arctic. Working within the National Defense Strategy, the United States Department of Defense outlined their Arctic objectives as including:

- Defend the homeland;

- compete when necessary to maintain favorable regional balances of power; and

- ensure common domains remain free and open.

While China's Arctic Policy highlights cooperation and peace, the United States prioritizes security and defence (Konyshev & Sergunin 2017). The United States believes that the Arctic is a potential target for outside actors due to its strategic value and has recognized that states like Russia and China provide 'discrete and different challenges in their respective regions" (Department of Defense, 2019). With continued uncertainty in the Arctic, states including the United States and Russia will remain sensitive towards hostile action and any violation of the rules based order in the Arctic (Konyshev & Sergunin 2017). This has also translated into concern that China will accumulate influence in the region while undermining international rules and norms.

The United States continues to be wary of China's Arctic strategies, specifically around the 'Polar Silk Road'. To protect their northern interests, the United States enhanced their Navy's Second Fleet to operate more visibly in the Arctic along with re-establishing a naval facility in Keflavik, Iceland (a site the United States abandoned in 2006). The United States Coast Guard also finalised long-delayed plans to construct new ice-breakers to replace their two aging vessels (Magowan & Schaik 2019).

The geopolitics of the Arctic are further complicated by Russia. In 1997, Russia and China made a "Joint Declaration on a Multipolar World and the Establishment of a New International Order" in opposition to the

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dominance of the United States on the global stage (United Nations 1997). Since then, China and Russia have worked closely, particularly on military strategy, with joint exercises beginning in 2005 and maritime exercises in 2012. Increased Sino-Russian cooperation poses a challenge to the geopolitical arena of the Arctic, particularly when considering Russian activities in the region. Since 2007, Russia has heavily re-prioritized the Arctic, reopening 50 Soviet era bases and facilities and expanding their ice-breaker fleet to over 40 ships (Melino & Conley 2020). The goals of the Russian military presence in the Arctic include:

- enhance homeland defense, specifically a forward line of defense against foreign incursion as the Arctic attracts increased international investment;

- secure Russia's economic future; and

- create a staging ground to project power, primarily in the North Atlantic.

This posturing exacerbates concerns by the United States that they need to continue developing their own Arctic military presence. Thus far, China and Russia have yet to sign any treaties that specifically address military cooperation in the Arctic and the process may be slow-going due to their competing interests (Melino & Conley 2020, Oddleifson, Alton, & Romaniuk 2021). This may lead to the Sino-Russian relationship being strained or coming into conflict.

Canada's Arctic and Northern Policy Framework aims to establish a rules-based international order in the Arctic along with ensuring that the Canadian Arctic and its people are safe, secure and well defended. Canada's ability to detect and monitor territorial incursions and to enforce sovereign claims over its Arctic territory is imperative to this effort (Mitchell 2020). As well, given Inuit interests, sovereignty over resources in the North could have a significant impact on the political structure of this region, especially as the Canadian government has recognized new governance powers to Nunavut. Compared to the United States, Russia, and China, Canada has a relatively small military and thus it is imperative for Canada to rely on other strategies and actors to ensure its policy goals are achieved. Moreover, the complex web of policies and interests in the arctic region highlighted above, raise the risk of Canadian arctic interests being compromised by other states, particularly with the entrance of China as a major actor.

The United States and China are, respectively, Canada's largest and second largest trading partners (Sarty, 2020). As Canada's largest trading partners, conflict between these two superpowers has the potential to jeopardize Canada's political and economic interests. Canada and the United States share the world's largest border and a historically strong partnership and China's rapid industrialization makes for a promising partner in Arctic research and economic development (Havnes & Seland 2019, Lackenbauer et al. 2018). Russia and Canada also constitute the two largest borders contiguous to the Arctic. Therefore a robust diplomatic relationship between the two countries is imperative in maintaining effective governance across the region.

Policy Relevance

With the fears of an Arctic Cold War, some of the current scholarship believes the existing multilateral institutions in the Arctic are not adequate to deal with hard security matters around militarization (Bader, Radoveneanu, and Ragab-Hassen 2011; Zandee and Kruijver 2020). The Arctic Council, for example, excludes military activity from its mandate. A similar critique is made of the International Maritime Organization. NATO is a defensive alliance and is perceived by Moscow to be antagonistic to Russia. The Arctic Security Forces Roundtable is NATO-centric and Russia has been excluded from the roundtable since 2014 following its annexation of Crimea. Finally the Arctic Coast Guard Forum primarily deals with soft security matters. For Canada to effectively maneuver through the Arctic geopolitics imposed by China, it is clear that the growing militarization of the Arctic needs to be addressed. This is especially relevant as Russia, in a 2021 Arctic Council meeting, has asked to reconvene the Arctic states in talks between these countries' Armed Forces (Jonassen 2021).

As such we propose two paths forward for Canada: (1) cooperation between Canada, the United States, China, and Russia, and (2) deterrence of Chinese and Russian military activity.

Recommendations

1. **Canada should develop and innovate a hard security framework that is independent from the Arctic Council.** With the lack of a formal political framework which centers around hard security matters in the Arctic there is an opportunity to institute a forum that promotes cooperation and inclusion. Fortunately, the Arctic Council provides a suitable framework due to its inclusion of all Arctic States, Indigenous Groups, and invested Observers. While the Arctic Council is reluctant to discuss hard security matters and excludes them from its mandate, the growing militarization in the Arctic cannot and should not be ignored. We propose a formal 'Arctic Security Council' which would discuss strategic military cooperation with the goal of mending relations between competing interests whilst also managing future hard security matters. This council would replicate the framework of the Arctic Council including its institutional structure and membership. While this council would constitute the membership of the Arctic Council, it would run independently from the Arctic Council and draw both diplomatic and military resources from each member state. The goal is to maintain the integrity of the primary Arctic Council but to have a separate formal forum to discuss hard security matters. Although China is only an observer to the Arctic Council, its status as a great power would warrant an invitation to this subsidiary council. As a whole this could serve as a crucial tool to pursue cooperation and collaboration amongst global actors in the Arctic as more actors continue to have invested interest in the region.

2. **Canada should work collaboratively with Russia in promoting security dialogue in the Arctic.** As the incoming chair of the Arctic Council in 2021 Russia has stated their interest in reviving military dialogue between Arctic States. Canada should work cooperatively with Russia in developing the 'Arctic Security Council' recommended above. This would serve to demonstrate Canada's willingness to cooperate with Russia on Arctic affairs but also represent a symbolic notion of cooperation among member states in regards to military matters and reaffirm efforts to secure and maintain good governance in the Arctic. It is possible, given that Russia is urging a renewal of a security dialogue and

positive relations within the military sphere (Jonassen 2021), that further cooperation among Arctic States and Indigenous Permanent Participants may be possible (Arctic Council 2021).

3. **Canada should work with our closest Allies in the Arctic to form an informal forum that is modeled after the Quadrilateral Security Dialogue or 'Quad'.** The Quad is an informal security and strategic 'dialogue' that is maintained by four countries with interests in the Indo-Pacific region (Australia, the United States, India, and Japan). To date, cooperation has largely manifested itself in the form of joint naval exercises and coordinated diplomatic responses (predominantly addressing Chinese behavior in the region). The Arctic Security Forces Roundtable is the contemporary institutional security framework in the Arctic. However, this current ecosystem lacks the strategic cooperation that the 'Quad' embodies. One potential remedy to this is to imitate an Arctic 'Quad' with joint military exercises between the United States, Canada, and other members of the Arctic Security Forces Roundtable.

4. **Canada should use the formation of an Arctic Quad as a deterrent to Chinese and Russian aggression.** An Arctic 'Quad' can be an expanded multilateral approach beyond the current military to military forum to ensure Canada's interests are met. The military-to-military feature can be complemented with a coordinated diplomatic and strategic dialogue with states in the liberal international order. Secondly, the joint exercise of military and naval training missions can act as a deterrent to Chinese and Russian aggression in the region. Establishing a security dialogue for the region with the United States, Norway, France, the Netherlands, the UK and Canada balances the appearance of a hard power approach to security in the Arctic.

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Navigating US-China Relations: How Can Canada Position Itself Among Competing Digital Trade Regimes?

Harry Deng, Ioana Giurgia, Haily McKenzie, and Jacob Miller

Issue

Given the absence of a global consensus on digital trade, three key competing regimes governing privacy, competition and cross-border data flows have emerged that reduce Canada's digital policy flexibility. To maximize benefits from the digital economy, Canada should strategically position itself amongst these three key regimes.

Background

Digital trade refers to all cross-border trade transactions that are either digitally ordered, digitally facilitated, or digitally delivered (Organization for Economic Co-operation and Development [OECD] 2020a). Underpinning digital trade is the management of cross-border data flows and data privacy. For innovative firms, data is not only a means of production, but also a valuable economic asset in and of itself that can be used to improve business analytics and supply chain management, among others. Since 2015, cross-border data flows have exceeded the value of cross-border merchandise trade and it is estimated to reach a value-added of USD 11 trillion by 2025 (OECD 2020b). The COVID-19 pandemic has demonstrated the importance of the digital sphere, accelerating the need to establish global norms and rules (Vlassis 2020). Thus, Canada should better position itself at the forefront of digital trade issues and play an essential role in driving an international consensus on digital trade that is consonant with Canadian values and interests.

The three major digital trade regimes

United States (US)

The US takes a laissez-faire approach to governing digital trade, reflecting the early days of its development, where there were few government regulations. While digital provisions within free trade agreements (FTAs) have strengthened, they continue to enforce free movement. The digital trade provisions within the Canada-US-Mexico free trade agreement (CUSMA) reflect the US approach of reducing barriers to facilitate an open regime. For example, CUSMA bans duties on electronic transmissions, discrimination against foreign digital products, restrictions on cross-border data flows, forced localization requirements, and forced transfer of source codes (Government of Canada 2019). Privacy has not traditionally been a principal policy pretext for digital trade issues for US policymakers. This is unsurprising since the dominant players in global tech are US-based firms that benefit from relaxed privacy laws and strong intellectual property (IP) protection for their proprietary data stores. However, this may be changing under the Biden administration - as demonstrated by the 2021 Group of Seven (G7) Digital and Technology Ministerial Declaration where G7 leaders agreed to deepen cooperation on data protection and competition (Rahill 2021; Feiner 2021).

China

The Chinese approach digital trade more cautiously. The most important element for the Chinese regime is extensive barriers to international data flows (United Kingdom [UK] Office for Science 2020). China's data governance regime can be seen through the Regional Comprehensive Economic Partnership (RCEP). Under RCEP, Parties can deem restrictive data policies necessary, free from scrutiny by other Parties; data localization can be justified under certain conditions; and although member countries commit to take into account data protection standards, none are explicitly referenced (Streinz 2021). RCEP also excludes digital trade chapters from state-to-state dispute settlement provisions. As a result, Parties are free to pursue privacy and data protection framework and retain highly restrictive digital regimes with minimal regulatory constraints or external challenges.

European Union (EU)

The EU data regime is centred around fundamental individual rights such as privacy and data protection. It includes a single harmonized digital market across the EU that provides stability for business operators and enables the free flow of personal data (UK Office for Science 2020). As such, broad alignment with EU standards is required to enable the international free flow of personal data with the EU. This can often present a barrier between the EU and countries that adopt alternative approaches to data protection (UK Office for Science 2020). The EU's digital priorities are visible within the Comprehensive Economic and Trade Agreement (CETA). CETA protects the free flow of data across borders, improves market access and transparency, addresses digital trade barriers, and includes provisions on the protection of personal information (Government of Canada 2017). However, CETA fails to address data localization. Although it is non-binding, CETA also provides a framework for domestic competition legislation aimed at preventing harmful anti-competitive conduct.

Canada's Policy Space and Position

CUSMA and the CPTPP oppose the use of data localization requirements and constrain Canada's ability to require foreign firms to use domestic computing facilities when operating in Canada (Phull 2019; de Beer 2020; Ciuriak 2019). Additionally, CUSMA, the CPTPP and CETA each required changes to

Figure 1: Summary of the Three Competing Regimes

	Data Protection and Privacy	Competition Law	International Policy
🇺🇸	No comprehensive federal law; not historically prioritized	Data is not typically seen as a competition issue	Promotes free data flow
🇨🇳	Some rules for businesses, but not for government	Unclear if data is considered a competition issue; may support domestic and state-owned companies	Extensive barriers to international data flows
🇪🇺	Fundamental individual rights	Data can be considered a competition issue	Free data flow within EU and certain states

Source: Re-created from United Kingdom Office for Science 2020.

Canada's patent, data protection, and trade secrecy laws (de Beer 2020). These areas of IP are most crucial for data ownership and control over data intensive technologies, such as artificial intelligence and biomedical technologies (de Beer 2020). While these concessions were made to achieve gains in other areas of the economy (de Beer 2018), they have limited Canada's short-term rent-capturing ability and Canada's policy flexibility to develop its own digital trade strategy.

The 2019 Digital Charter provides a broad roadmap of 10 core principles that outline Canadian digital trade interests. These principles seek to strengthen Canada's data protection and privacy laws while also ensuring that Canadian firms can take advantage of the digital economy (Government of Canada 2020). Based on these principles, the Digital Charter Implementation Act (DCIA) seeks to introduce actionable policies; however, it has been criticized for lacking both clear guidance and connections with on-going global digital trade discussions (de Beer 2020).

Canada's data privacy and protection policies, in particular the Personal Information Protection and Electronic Documents Act (PIPEDA) and the Privacy Act, regulate how the private and public sectors, respectively, collect, utilize, and disclose personal information (Office of the Privacy Commissioner of Canada 2019; Government of Canada 1985). These Acts, paired with the DCIA indicate Canada's interest in data privacy. Although the DCIA distinguishes Canada's data protection approach from the EU's General Data Protection Regulation (GDPR) by applying a principle-based data protection approach that is founded on consumer-protection and outlining algorithmic accountability requirements, the

two approaches are nonetheless closely aligned (Piovesan, Corriveau and Xu 2020).

Central to Canada's approach to competition policy is its Competition Bureau and associated Competition Act which governs most business conduct and aims to prevent anti-competitive practices (Government of Canada 2018). The Competition Bureau's 2020-2024 Strategic Vision outlines the leadership role that Canada should play, both domestically and internationally, to adapt competition policy to the impact of the global digital economy (Competition Bureau of Canada 2020). Additionally, while the DCIA seeks to secure fair competition in the online marketplace, it has not yet substantiated any laws or policies in this area (de Beer 2020).

Next steps

Considering Canada's economic and security relations with the US, EU and other like-minded partners and that Canada's digital trade interests differ substantially from China's, it is unlikely that Canada would adopt or promote China's digital trade regime. The EU digital trade regime shows signs of promise for cooperation, particularly on privacy laws. While Canada's commitments through CUSMA have limited its digital policy flexibility, the US remains Canada's most important trading partner. If Canada pursues any digital trade policies that conflict with those of the US, Canada will need to carefully consider their impact on Canada-US cross border data flows.

Canada should be more proactive in declaring and projecting its digital interests globally. While the pending DCIA demonstrates Canada's interest in strengthening data protection and competition law, moving forward Canada should use the Digital Charter to introduce clear and strategic laws and policies to address these digital trade issue areas (de Beer 2020; Ciuriak 2019). Once its policies are refined, Canada can take both defensive and offensive measures to ensure that the Canadian economy is well positioned for the future.

Defensively, Canada's digital trade concessions via international agreements limit its ability to take advantage of the digital economy (de Beer 2020). Therefore, Canada should consider protecting its remaining policy flexibility within existing and future international agreements. On the other hand, Canada should take a more offensive approach to digital trade issues. The G7, OECD, and World Trade Organization (WTO) present opportunities

for Canada to directly influence the global digital agenda and limit protectionist policies.

Leading up to the 2021 Cornwall Summit and by leveraging the OECD's work on digital trade, G7 leaders have worked to advance the agenda for WTO reforms on the issue of digital trade (G7 2021a). The G7 has sought to address two key areas of digital trade that are of importance to Canada: first, privacy and data protection laws as a means to create trust and increase participation within the digital economy; second, further regulatory cooperation to facilitate greater competition (G7 2021b). Canada should leverage future G7 and WTO engagements, such as the upcoming 12th WTO Ministerial Conference (MC12) and the Future Tech Forum hosted by the UK in September 2021 (G7 2021b). These fora can provide opportunities to reshape global digital norms with the objective of replacing provisions within existing international agreements, such as CUSMA, that limit Canada's policy flexibility.

Canada should also project its digital trade interests through the Digital Economy Partnership Agreement (DEPA). Thus far, DEPA has addressed numerous digital trade concerns and it plans to promote interoperability between different global data regimes and create competition policies to regulate big data firms (Ministry of Trade and Industry Singapore 2021; Aaronson 2021). Canada began exploratory discussions with DEPA parties in February 2021 and is currently conducting consultations with the public. As an early DEPA member, Canada would play a valuable role in the future developments of the agreement (Government of Canada 2021). DEPA could create a critical mass of states with shared digital economy goals and norms that can provide greater leverage when negotiating with larger states (Nagy 2019; Heisler 2021) and could be used in WTO negotiations (Greenleaf 2019).

Lastly, Canada should promote its digital trade interests by pursuing soft law measures with smaller, rising nations and alliances such as those in Africa, Asia-Pacific and Latin America (de Beer 2020), including in the Organisation Internationale de la Francophonie.

Recommendations

The following five recommendations are in line with Minister Garneau's mandate letter stating that Canada should reinforce its engagement within existing international institutions, while also placing itself at the forefront of global governance on emerging issues. In order for Global Affairs to achieve these recommendations they will need to collaborate with the Treasury Board of Canada Secretariat, the Department of Finance Canada, and Innovation, Science, and Economic Development Canada.

1. **Canada should build upon the Competition Bureau's Strategic Vision on digital trade and the Digital Charter Implementation Act to establish a position on competition law with actionable laws and policies**. Canada should develop a clear position on competition law that will help Canadian firms take advantage of the digital economy. The Government of Canada should continue to consult with the Canadian tech industry, experts (including at the Centre for International Governance Innovation), and the public to determine an approach to competition law that will be most beneficial to Canada, including further studies on the feasibility of an open-data regime.

2. **To maximize benefits from digital trade, Canada should protect its remaining policy flexibility in the digital trade space.** Specifically, as part of negotiations Canada should avoid making further concessions on data protection and privacy, competition law, and the free flow of data in both existing and future international trade agreements.

3. **Canada should take advantage of the momentum within the G7 and OECD for WTO reform leading up to the MC12 to ensure Canadian firms become increasingly competitive globally.** Within these fora, Canada should advocate for a more open and equitable data-sharing regime where data is either free or the value of the marginal costs of production and dissemination. However, a more open data sharing regime should also be paired with strong data privacy laws. Given that Canada's data privacy interests, as outlined in the DCIA, align closely with GDPR provisions, Canada should work with the EU to shape the global standard.

4. **Canada should join DEPA.** Through DEPA, Canada can develop frameworks for data protection, competition law, and data flows that are both beneficial to Canada and attractive to smaller states, such as by establishing a degree of policy flexibility (Ciuriak and Ptsashkina 2018).

5. **Canada should promote its digital trade interests by pursuing soft law measures**. This can be accomplished by setting standards and best practices through greater capacity building (i.e. research partnerships) and engagement with these smaller, rising nations. Canada should take advantage of its Francophonie culture to engage with countries within the Organisation Internationale de la Francophonie.

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Tech and Security – Canada: A Middle Power Among Global Rivalries

Andrew Horne, Peter Lawler, Marcello Maddalena and Kristy Smith

Issue

The challenges of a technological twenty-first century digital economy require urgent, integrated approaches that are grounded in a clear identification of Canada's interests (economic, security and societal) by closing the gaps on Canada's dependencies and vulnerabilities, and harnessing the country's many points of leverage, influence, and strength.

Background

In the following brief, technology will refer to intellectual property (IP), data, and emerging technologies as outlined in Canada's *Innovation for a Better Canada* report (Innovation, Science and Economic Development Canada, 2019). As such, technology is a wide-ranging term, referring to both tangible and intangible assets, consistent with the definitions of technology presented by the US, UK, EU, and China.[1]

With the importance of IP being the backbone of modern technology, Canadian IP is exposed to a variety of risks, such as cybertheft and foreign acquisition.[2] The impacts of lost IP include job loss, company failure, damages to corporate tax revenue and threats to critical Canadian infrastructure. With the emergence of technological competition and the security implications of an increasingly interdependent world, recognizing the relationships between Canada's dependencies and global supply chains is key to understanding the frameworks and policies Canada must prescribe to mitigate risk. As the challenge of emerging and transforming technology requires immediate attention by government, it is important to highlight Canada's vulnerabilities and dependencies for both tangible and intangible technology. Doing so will maximize Canada's leverage in negotiating in bilateral and multilateral settings, and to enable Canada's competitiveness with both like-minded partners such as the US, EU, and UK, or with players like China — specifically as global economies undergo an intangible shift.[3]

To enable Canada's competitiveness and leverage negotiating positions in bilateral and multilateral settings — whether with close partners like the United States and European Union or with players like China — Canada needs to establish a strong sovereign line that is outlined through robust domestic policies and positions designed to safeguard Canadian interests. Efforts by the Government of Canada must draw upon the knowledge of Canada's public and private sectors (from artificial intelligence (AI) to rare earth elements (REEs)) to inform domestic policies and position Canada more effectively where technology

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1   For more information see: The White House (2021) "Fact Sheet: Securing America's Critical Supply Chains," European Commission (2021) "A Europe Fit For The Digital Age," US Chamber of Commerce (2017) "Made in China 2025: Global Ambitions Built on Local Protections, and Government of the UK Central Digital and Data Office (2019) "Government Technology Innovation Strategy".

2   According to CSIS (2019), and Public Safety Canada (2019), Canadian IP is one of the primary targets of foreign adversaries.

3   In Canada and much of the world, intangible assets and investments in technology including IP and digital services are driving an economic shift (Lamb and Munro 2020)

and security intersect. Doing so will enable effective international negotiation strategies that will shape global standards in ways that reinforce the security and prosperity of Canadians.

Safeguarding Supply Chains for Tangible Technologies

Maintaining a market openness for tangible technologies while investing in domestic production is necessary to safeguard supply chains that are vital for a resilient economy and upholding Canadian sovereignty and national security. Dependencies are credited to global supply chains and manufacturing giants like China that mass-produce goods at affordable prices (Ong 2020). Canada's dependency on affordable technology from China is not only limited to parts like transistors and REEs, but the transfer of final products such as cellphones and computers. Canada's trade dependency on mass producers like China is therefore essential for maintaining the welfare of Canadian citizens and the production of Canadian-made products (Scarffe 2020).

In 2020, China accounted for 70% of global production of REEs that are essential for tangible technology infrastructure (Jamasmie 2020). In addition, Taiwan Semiconductor Manufacturing Co. (TSMC) is the world's largest foundry for semiconductor chips used in smartphones, AI hardware, and high-performance computing.[4] In response to emerging techno-competitions and the security implications of hyper-dependencies on global manufacturing giants, the Government of Saskatchewan has invested C$31 million to build a Rare Earth Processing Facility, which plans to be operational by 2022 (Ibid). As global demand increases for tangible tech infrastructure such as REEs and semiconductor chips, Canada must utilize policy frameworks that align with Canadian economic, security, and societal interests to safeguard vulnerable supply chains while decreasing dependencies on manufacturing giants like China and Taiwan.

Managing Canadian Dependencies on Intangible Technologies

Canada is challenged by being a middle-power among global competitors such as the US, the EU, and China. Adopting strong domestic policies through a whole-of-government approach to develop and secure IP, advanced technologies, and AI will therefore support Canada's national security efforts and safeguard Canadian sovereignty in a world that is increasingly interdependent. Furthermore, through robust domestic policies, Canada can promote investment in our leading tech industry and protect both Canadian IP and national interests.

While Canada depends on the US for advanced capabilities using intangible technologies, as well as other like-minded partners through the Five Eyes, global players depend on Canada's private sector for IP, software, and emerging technologies in security and defence. According to *From Bullets to Bytes* by the Canadian Association of Defence and Security Industries (CADSI), there are 1252 firms in Canada that focus on defence and cybersecurity technologies, of which 30 have top-tier expertise working for agencies abroad as there is a lack of demand from the Government of Canada for their work and expertise.[5] The acquisition of Canadian firms and export of IP linked to security technologies limits Canada's competitiveness and leverage when trying to position Canada more effectively among global competitors in the twenty-first century.

Considering the frameworks of Canada's leading allies, the US, the UK, and Australia employ comprehensive cyber security strategies that foster discussion amongst domestic industry leaders and operationalize domestic designs that offer secure networks of real-time intelligence sharing and coordinated threat-reduction activities. Adopting similar policies and practices in Canada while maintaining strong multilateral cooperation will safeguard Canada's technology development at home, protect Canadian interests and national security, and will guide Canada with navigating global standard setting competition as demand for emerging intangible tech increases.

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4   A shortage of semiconductor chips in 2021 has revealed how dependent global manufacturers and consumers are on supply chains linked to Taiwan and TSMC (Crawford et al. 2021). In response, the United States, the EU, and China aim to increase domestic production of semiconductor chips by investing $25 billion, $36 billion, and $1.4 trillion, respectively (all figures in USD) (ibid 2021).

5   Notable acquisitions of Canadian tech firms by multinational corporations include Aimetis in 2016 by an unnamed Israeli security firm (Record Staff 2016), and Aeryon in 2019 for $265 million by U.S. leading tech giant Flir Systems Inc. (Bueckert 2019).

Recommendations

1. **Canada must establish policy foundations and negotiation enablers.** It is time for Canada to design and execute a national technology strategy that would act as both a domestic and international policy tool to define Canada's interests and goals, outline where we have flexibility for influence or negotiation, and where Canada must take a focused stance. Canada's four counterparts in the Five Eyes have developed national technology strategies recognizing the importance of safeguarding innovation, privacy and security (Center for New American Security, n.d.). A national technology strategy would also give clarity to both foreign investors and domestic companies to better navigate Canada's technological ecosystem. The development of this much needed policy strategy would enable Global Affairs Canada to negotiate on behalf of Canadians and Canadian prosperity and to stand more firmly with the likes of the US, EU and China who have well-defined technological interests and have taken advantage of Canada's ineffective (or absent) data and technology policies.[6]

2. **Canada must communicate and work collaboratively on a domestic level.** A national technology strategy can provide the backbone to developing technological security policies, but it is essential that governmental departments communicate and cross-reference policies that impact technology security before implementing. This requires a whole-of-government approach with collaboration between relevant departments and agencies such as Global Affairs Canada, Public Safety Canada, the Department of Environment and Natural Resources, the Department of Finance, and drawing upon leadership from the private sector and experts. Piecemeal policy approaches that are developed in silos can undermine Canada's interests or have security implications of their own as we have seen in the case of allowing Huawei to infiltrate our IP

ecosystem. Communicating and working in a united front across governmental departments is essential to strengthening and maintaining Canada's position on technological security.

3. **Canada must pursue multilateral cooperation with like-minded partners in the fields of supply chain management and digital governance.** For decades, Canada has participated in Multilateral Export Control Regimes (MECRs) designed to support the non-proliferation of weapons of mass destruction, missile technologies, and chemical weapons that emerged in situations which technology sectors now present.[7] These informal arrangements with intelligence exchanges; no undercut rules; and carefully defined lists of technologies provide opportunities to coordinate export controls. This innovative model provides one approach for Canada to deny adversaries like China and Russia access to critical technologies. It might intensify the digital-divide, however, China's dependence on Western countries for high-value IP assets rules out a complete divergence. Since absolute common purpose is hard to achieve, Canada must align with a small group to maximize effectiveness. Canada's leadership position in trade agreements and multilateral initiatives provide options for how to establish a technology specific alliance.[8]

4. **Canada must work with partners to develop consistent technology standards.** Global standard-setting competition is currently dominated by the US, EU, and China, with other actors playing marginal

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6   After no longer being part of the EU's GDPR, the UK developed a national data strategy of its own recognizing the importance of safeguarding innovation, privacy and security. Their data strategy takes less of a protectionist approach than GDPR, but is more stringent than measures outlined in the digital chapter of the USMCA. The UK's intent is not to be too burdensome for the average company and to use data responsibly and legitimately (Government of The United Kingdom, n.d.).

7   Informal export control regimes become ineffective when membership is too diverse, experiencing: vague definitions of control lists; internal disagreements; lack of transparency around export disclosures; decision-making obstructed by consensus voting; etc. (Beck and Jones 2019, Joyner 2004).

8   Current proposals for a technology alliance call upon the US and its democratic allies shared values in upholding a free and open internet following a D10 structure to facilitate like-minded policy coordination (Australia, Canada, EU, France, Germany, Italy, Japan, Netherlands, South Korea, UK, and US). For more see Robert Knake (2020) "Weaponizing Digital Trade: Creating a Digital Trade Zone to Promote Online Freedom and Cybersecurity," *Council on Foreign Relations* and CNAS (2020) "Common Code: An Alliance Framework for Democratic Technology Policy."

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roles.[9] Thus far, despite Canada's membership in existing frameworks like the G7, G20, NATO, and the 5 eyes - Canada has been slow to adopt technology-governing standards and the US and EU have been divided in their approach to technological standard setting, creating a disorganized space (Ortega 2020).[10] Nonetheless, both the US and EU present liberal views of technology standards, and are more compatible with each other than they would be with Chinese illiberal standards. While Canada is limited in its ability to influence EU-US standards directly, its membership in the G7 and G20 sees it well positioned to push for further cooperation. US-EU cooperation (and the Canadian adoption of consistent technology standards), could create a more governed space, nudging Chinese firms to adopt liberal standards in a non-confrontational way (Rühlig, 2021).[11]

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9   While it may appear to be a neutral act, control over standard setting is a key aspect of determining who makes the rules in the global economy (Schneider-Petsinger et al, 2019).

10   This lack of coordination between the EU's General Data Protection Regulation (GDPR), and American regulations has opened the door for China to set standards in technological regulation.

11   Evidence shows that Chinese firms generally follow international standards, therefore, US-EU cooperation could create a set of consistent standards followed by most companies globally (Schneider-Petsinger et al. 2019).

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Insecurity

COVID-19 Economic Impacts and GAC's Role in the Green Recovery

Alexander Pham, Breanna Cera Emard, Joanna Hausen

Issue

Canada was not on track to meet climate commitments prior to the COVID-19 crisis and now faces further economic constraints. The recovery from COVID-19 is an opportunity for Global Affairs Canada (GAC) to support export potential and trade infrastructure that increase Canada's participation in the green economy and progress on climate goals.

Background

Current modelling of progress on global climate and green economy commitments shows that Canada is not on track to meet climate mitigation targets, even considering new policy commitments or technology (Mulvaney 2019; Singh 2019), and the policy situation has become more challenging given the economic fallout from COVID-19. Since March 2020, COVID-19 has disrupted domestic and global economies while focusing government attention on immediate relief efforts and essential sectors. From 2019 to 2020, Canadian GDP fell by 5.4% and unemployment doubled to 14% (Statistics Canada 2021), with women, youth, low-income workers and people with disabilities particularly affected. Canadian exports declined by 10.7%, with losses concentrated in the automotive, electronic and energy industries (Blanchet and Sekkel 2020). Further, a rebound in global trade is being hindered by economic nationalism in countries such as the United States, China, Germany, India and France (Jackson et al. 2021).

At the same time, trends indicate a green shift in global economic activity. Carbon intensive options such as fossil fuel demand are forecast to decline over 60% by 2050 (IEEFA 2020). In fact, the most recent International Energy Agency report calls for immediate and large-scale deployment of clean and efficient energy technologies and no new oil and gas fields or coal and mining extensions to achieve a path to net zero by 2050 (International Energy Agency 2021).

International investment in environmental stimulus has reached +US\$3 trillion by key trade partners and unions such as the EU, France, Germany, South Korea, Japan, China, India and the United States (Vivid Economics and Finance for Biodiversity Initiative 2020). In the current stimulus packages of countries with net-zero emissions targets, there are similar measures being adopted alongside requirements for divestment from carbon-intensive and polluting industries:

Key sectors: energy, transportation, buildings and housing, agriculture, industry and other non-carbon-intensive sectors such as childcare

Key subsectors: EVs, hydrogen, digital technologies, carbon capture methods, batteries and other emerging technologies

Labour force support: transitions and job creation for green sectors, re-skilling and helping businesses create green opportunities

Green financial tools: investment, product and industry subsidies, green home and business grants, loans, industry bailouts and stipulations or safeguards

Other trends: Investment in research, development and innovation; adjusting regulatory measures; and aligning stimulus packages with environmental plans

Yet the recovery packages of OECD countries also contain unsustainable economic recovery initiatives, including subsidies for harmful activities, harmful infrastructure investments, deregulation of environmental standards, environmentally related bailouts without green stipulations and subsidies or tax reductions for harmful products (Vivid Economics and Finance for Biodiversity Initiative 2020).

Of note also is that global actors have committed to an 'inclusive multilateralism' that aligns the sustainable transition pathways toward a green recovery through information sharing, regulatory alignment and technical support (Annex 2). Global economic cooperation has underpinned trade in environmental goods and services, innovation, sustainable finance and technical support between countries, and rules-based trading. Canada, particularly GAC, is active in multilateral groups which uphold these standards (GAC 2020).

Of particular interest for Canada is the new Biden administration's ambitious plan to cut emissions by 50% below 2005 levels by 2030 and achieve net zero by 2050. The 'Made in America' approach would dedicate US$3 trillion towards efforts to build sustainable infrastructure, stimulate the economy and create job growth by investing in domestic industries (Tankersley 2020). Emphasis is being placed on the electric vehicles (EVs) and charging infrastructure, batteries, rare earth metals and critical minerals (Biden 2021).

Canada shares policy strategies with other key trading partners. Germany is promoting renewable energy transitions through public subsidies for SMEs via the Energiewende program (World Nuclear Association 2020), in order to achieve a 55% reduction in emissions by 2030 with an investment of 130 billion euros (Nienaber and Hansen 2020). China is a major player in cleantech and global supply chains, pursuing renewable energy, digitalization and critical minerals (Campbell 2019;

Dagnet and Jaeger 2020). They have committed to reach 25% renewable energy by 2030 by investing $380 billion (Xu and Stanway 2021).

In this context, in April 2021, Canada has ramped up its greenhouse gas emissions target to a 40-45% reduction below 2005 levels by 2030 and is developing an ambitious plan to achieve net zero by 2050 (Trudeau 2021). However, continued investment in unsustainable oil, gas, mining and coal threaten Canada's climate goals. Key actors such as Export Development Canada have committed long-term investment in cleantech while still investing in unsustainable industries supported through GAC's trade commissioners. Environmental standards for trade negotiations were developed in 2020, resulting in improved trade negotiations (e.g., an environmental chapter was included in CUSMA), and yet these tend to be weak and unenforceable, underplaying interconnected environmental issues (Fawcett-Atkinson 2020).

Canada's Outlook

Canada is well positioned in the global green economy as a leader in cleantech research, development and production, with the sector valued at $10.6 billion and projected to be one of Canada's top five exports by 2025 (Nye Powell and Leach 2021). By 2030 Canada's cleantech products are projected to increase GDP from 19% in 2020 to 24% in 2030 (Navius Research INC 2019). Leading green energy products include low-carbon fuels, mined clean energy materials, clean electricity and power equipment such as photovoltaic and turbine components, non-fossil-based generators, decarbonized heat and steam processes, electric and hybrid light and heavy vehicles and trains, and energy efficiency products (Sawyer 2020). Canada has committed to fostering these industries under the Healthy Environment and Healthy Economy strategy and the Federal Sustainable Development Strategy (Government of Canada 2021).

Domestic activity on cleantech such as artificial intelligence (AI), EVs, fuel cells and renewable energy technology is concentrated in the urban areas of certain provinces, including Quebec, Ontario and British Columbia. Quebec is a leader in AI technology (Innovation Science and Economic Development (ISED) 2020), British Columbia is focusing on hydrogen and fuel cells, Ontario has their own hydrogen plan and expertise in the Smart Grid deployment and energy storage, and all three provinces are large actors in electric mobility and

water technologies. Although Alberta and Saskatchewan are active in carbon removal technology, there is less activity aimed at reinforcing provincial diverse green economy hubs and new hubs in carbon-intensive regions and the Northern and Atlantic regions (GAC 2018).

Canada's Build Back Better Plan emphasizes gender diversity mainstreaming for investments and long-term resilience of integrated, risk responsive economic systems by committing $70-100 billion for three years. It should be noted that, despite Canada's trends toward a more inclusive economy, in 2020, the amount of women directors in cleantech companies was below 30% (Osler 2020), illustrating demographic inequalities that would be replicated in export and trade.

GAC's Role in the Green Economy

Future growth and green recovery in Canada as a small, open economy depends on enhanced global partnerships and coordination to achieve national goals for trade enhancement, ensure critical supply chains and achieve climate mitigation. GAC can contribute to strengthening domestic capacities for export, value-added production and carbon footprint-reducing activities, while at the same time reinforcing international partnerships, institutional capacity and standard setting to provide opportunities for Canadian actors and set standards (ISED 2020).

Through the Department Sustainable Development Strategy, GAC is committed to promoting sustainable development both at home and abroad. The Minister's Mandate Letter highlights two priorities: to continue the department's leadership on international efforts to combat climate change and to achieve close alignment across foreign, defence, development and trade policies (GAC 2020). GAC is also committed to supporting a green and inclusive approach to trade and export development as well as international environmental agreements through the gender-based analysis, environmental impact assessment and economic impact assessment (Government of Canada 2021).

To support effective action across government, GAC is engaged in horizontal cooperation with Environment and Climate Change Canada to provide policy and legal advice for international climate initiatives. It also works with the Minister of Innovation, Science and Industry and the Minister of Natural Resources to coordinate efforts to promote cleantech investment, critical supply chains and trade agreement standards.

In terms of specific programs, GAC supports the Mission Innovation goals to increase the value of Canada's cleantech exports to $15.6 billion by 2025 to promote market opportunities, position global trade commissioners, launch a domestic outreach campaign and fund Cleantech Global (GAC 2021). GAC plays a role in the following key programs:

Trade Commissioner Services: Supports funding, programs and intermediary action for Canadian businesses abroad with trade commissioners in over 160 global cities

> **CanExport:** Providing financial support, advice and connections of Canadian businesses with potential foreign partners, pursue international opportunities or attract foreign investment. Within CanExport, the Innovation Fund assists with research and development

> **Canadian Technology Accelerators:** Direct GAC funding program focused on cleantech industrial sectors to encourage investment and collaboration in foreign markets with America, Hong Kong, Singapore and Germany

> **Canadian International Innovation Program:** Indirect GAC funding for development and commercialization with the United Kingdom, Brazil, China, India, Germany, Israel and South Korea

> **Cleantech Global:** Canada's partnership with the Cleantech Group to promote decarbonization and green development innovation through programs

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Recommendations

The development of cleantech products is *as important as* the trade infrastructure and export potential of these products. GAC should work within its mandate to:

1. **Stimulate provincial innovation hubs for innovative research, development and production of green goods and services to increase export capacity.** Collaborate with ISED Canada using the CanExport Innovation fund and Innovative Solutions Canada programming to emulate success of provincial innovation hubs in Quebec, British Columbia and Ontario by targeting increased capacity for research, development and production. Prioritize opportunities for women, youth and racialized, rural communities and provinces such as Alberta and periphery regions, and Northern and Atlantic regions of Canada.

2. **Reinvigorate collaborative action with the US on bilateral efforts and regulatory partnerships for a North American green economy.** Through the CUSMA trade agreement and shared climate goals, emphasize joint production of EVs and critical supply chains through the US-Canada Critical Minerals Working Group and border standard alignment. Continue cooperation on shared build back better strategies by aligning trade standards that integrate supply and labour chains and renewable energy development between the US Department of Energy and Department of Natural Resources Canada, and polluter pays principles.

3. **Align with Germany's green Energiewende program to spur development on cleantech trade.** Through shared relations of bilateral Science, Technology, and Investment agreement and the Comprehensive Economic and Trade Agreement, focus trade and academic relations on EVs, batteries and hydrogen. Emulate Germany's example of SME and renewable energy-led transitions.

4. **Find inroads with China with firm-to-firm relationships and academic partnerships.** Through the shared relations of the G20, the UN, the Asia-Pacific Economic Cooperation and the Foreign Investment Protection and Promotion Agreement, build firm-to-firm relations for information and policy exchange. Canada should support academic relations between Canadian and Chinese institutions with emphasis on intellectual property and digital security, and the Canada-China Scholars' Exchange Program at the level that doesn't deter Canada-US relations.

5. **Improve environmental assessment of trade negotiations that continue to approve unsustainable international activity resulting in inadequate trade deals.** The environmental standards of trade agreements impact the foreign activity in Canada and Canadian activity internationally. GAC must uphold rigorous assessment of environmental impact of trade negotiations with meaningful enforcement measure that integrates domestic and international climate commitments.

Annex 1: Non-exhaustive List of Stimulus Plan Trends

(information sourced from Vivid Economics and Finance for Biodiversity Initiative 2020)

Stimulus Plan	Targets	Key Sectors	Green Measures	Investment
Countries with long-term Covid-19 green recovery plans				
Germany (Package for the Future)	Cutting 1990 emissions level by 55% by 2030; net zero emissions by 2020	Transportation and energy (and sub-sectors: EVs, e-mobility, batteries, hydrogen)	1. Investment in research, development and infrastructure 1. Aligning climate targets with the EU Green Deal and Germany's Energiewende 1. Green subsidies	US$150 billion economic stimulus package (Package for the Future): US$45 billion, 3% of total stimulus
France	Reducing greenhouse gases by 40% by 2030; net zero emissions by 2050	Energy (hydrogen, wind and solar), transportation, food and agriculture, industry, public buildings	1. Green conditions for financial support (government support for airlines, aviation and car manufacturing) 1. Investing in research and development	US$115 billion economic stimulus package; about €30 billion allocated to green measures
United Kingdom	Net zero emissions by 2050	Energy, transportation, housing, maritime (and sub-sectors: carbon capture, hydrogen, EVs)	1. Creating 250,000 new jobs 1. Investment in research, development and infrastructure 1. Green home grants	US$16 billion
South Korea (Green New Deal0	Net zero emissions by 2050	Energy, Mobility, Housing, Industry, Sub-sectors: EVs/HVs, Digital technology	1. -Create 230,000 energy-saving buildings, 1.13 million electric cars, invest in renewable energy, and provide unemployment insurance 1. -Create 1.9 million new jobs by 2025 with emphasis on digital technologies and transition of key sectors	US$94.5 billion economic stimulus package, US$48 billion in green funding
European Union (Next Generation EU)	40% reduction in emissions by 2030 32% of electricity production by renewables by 2030	Energy, agriculture, aquaculture (and sub-sectors: EVs)	1. Aligning with 'European Green Deal' 1. Just Transition Fund for re-skilling and helping businesses create new opportunities 1. Safeguards attached to recovery funding for member states 1. Investing in research and innovation 1. Regulatory measures, border adjustment	US$830 billion economic stimulus package, 30% directed toward green initiatives
Other countries with long term Covid-19 recovery plans with which Canada has relations				
United States	Net zero emissions by 2050	EVs, batteries	1. Target automotive industry and increase production of EVs 1. Acquire rare earth metals and critical minerals for battery development	US$3 trillion
Japan	Carbon neutrality by 2050	Energy, digital economy	1. Focus on wind development, reducing battery costs through tax incentives, and promotion of green bonds to innovate private sector cleantech	US$708 billion, $384 billion directed toward green economy
China	25% of total energy production based in renewables by 2030	Energy	1. Leaders in wind and solar capacity development, funding of cleantech projects around the world	US$380 billion

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Annex 2: Non-Exhaustive List of Multilateral Information Sharing and Technical Cooperation

- OECD will be enhancing and refining the monitoring of green recovery measures and expresses continued support for international environmental negotiations.

- Japan with UNFCCC support led the 'Online Platform for Sustainable and Resilient Recovery from COVID-19: Platform for Redesign', international tracking of green recovery measures.

- ILO has published policy recommendations for the social and economic crisis of Covid-19

- IEA has published the flagship World Energy Outlook Special Report about sustainable recovery, reports about the impact of Covid-19 on electricity and the World Energy Outlook for 2021

- WTO has published reports about Covid-19 and trade-related measures, held the WTO Trade and Environment Week 2020 and partnered with UNEP on green trade discussions

- UNEP supports information and best practice sharing for new ideas, technologies and environmental innovation to promote green COVID-19 economic recovery plans. February 22-23, 2021, the fifth session of the UN Environmental Assembly (UNEA-5) united Member States and stakeholders to take action to build a greener, resilient and inclusive post-Covid-19 world

Annex 3: Non-Exhaustive List of Horizontal Policy Coordination

- GAC should maintain and continue horizontal policy integration with other federal government actors

- GAC must work with ECC to support environmental agreements and integrate their trade needs, policy and standards alignment such as cross-border emissions standards

- GAC must work with ISED Canada to integrate environmental and equity standards into trade agreements, improving conditions for investment, innovation performance and increasing cleantech exports

- GAC must work with Natural Resources Canada for critical resource cooperation, assessing Canada's resource assets and gaps, and supporting the US-Canada Critical Minerals Working Group

- Other important horizontal actors include Export and Development Canada, The Department of Finance, Canadian Security Intelligence Service and Canadian Intellectual Property Office

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Enhancing Food Security in Developing Countries Amidst the COVID-19 Pandemic Through a Gender-Focused Triangular Cooperation Response

Zack Ahmed, Fatma Alsefaou, Kaitlyn Berriman, Sophia Foster

Issue

Women are critical to food systems and have the potential to significantly alleviate food insecurity in developing countries, but COVID-19 is exacerbating the pre-existing barriers inhibiting women's accessibility to food and participation in food systems.

Background

There is an opportunity for Canada to advance its Feminist International Assistance Policy by engaging with the Food and Agriculture Organization (FAO) to support women in the food system during the COVID-19 pandemic. The FAO has established a working group that aims to support countries facing food crises within the context of COVID-19. Canada is well-positioned to build a stable food system that will strengthen food security in the short term while investing in long-term food system resilience. This can be facilitated through gender-responsive triangular cooperation. This policy brief has focused on women due to the limitation on data available. Sexual and gender minorities must also be considered to ensure an inclusive and equitable approach.

Women's Role and their Challenges within the Food System

Women play a critical role in keeping food systems functional and engage with every point of the food system. Overall, in developing countries, women make up 43 percent of the agricultural workforce (del Rio & Salazar 2017; Ugwu 2019). In West Africa, 68 percent of employed women work within the food system and 83 percent work within food processing (Nordhagen 2020). In Ghana, for example, women produce 80 percent of the country's total food output (Ugwu 2019). Women also play an important role in the livestock sector, such as in Yemen, where they are responsible for 90 percent of livestock rearing (FAO 2018).

Despite their prominent role in food security, women face many challenges with gender inequality and discrimination along the food supply chain. Various patriarchal norms produce disadvantages for women. For instance, in male-headed households, studies show women's participation in farm or food management decisions reaches as low as 20 percent (Ugwu 2019).

Influenced by patriarchal norms, laws also inhibit women from engaging in food systems equally. Women face challenges with land ownership and discriminatory

inheritance rights. As a result, women possess only a 20 percent share of global land ownership (Ugwu 2019). In some countries such as Rwanda and Ethiopia, marriage is the sole means that women can access land. When women do own land, it is disproportionate to their participation in the food system. For instance, Congolese women form 60 percent of the agricultural workforce but only have 25 percent ownership of agricultural land (Ugwu 2019).

Women also face limitations in accessing financing. Banks often require land as collateral when issuing loans and since women are less likely to own land, they cannot receive credit to purchase agricultural inputs such as fertilizer or machinery. This lack of credit affects all sectors of the economy as women cannot obtain funds to start or expand their own businesses and fund their households (Ugwu 2019).

The role of women in the food system is imperative. The barriers in place are limiting the potential women have to strengthen food systems. Canada has recognized the issues women face with the adoption of its Feminist International Assistance Policy. It is imperative that Canada continues to advance this policy while specifically recognizing the current context of COVID-19 and the impact it has had on women in the food supply chain.

COVID-19's Impact

COVID-19 has further exacerbated the already existing issues women are facing along the food supply chain. Women are excluded from mainstream employment opportunities leading to many of the jobs that women hold to be informal and precarious. According to the International Labour Organization, 74 percent of women's employment in Sub-Saharan Africa is in the informal sector of the food supply chain, compared to 61 percent for men (Blanke 2020). This leaves their jobs to be the first ones cut in an economic downturn. For example, many East African flower farmers are women and due to COVID-19's extensive impact on the horticultural sector, many have lost their livelihoods. In Kenya, around 50 percent of female flower workers have been given compulsory leave and about 150,000 have lost their jobs in Ethiopia (Bhalla and Wuilbercq 2020). COVID-19 has also impacted women smallholder farmers, by disrupting transportation logistics and demand for food which in turn, constrains women's agricultural productivity and access to markets (Montalvao and Van De Veldea 2020). This results in profound consequences as approximately

70-80 percent of farmland in low-income countries are managed by smallholders, with a large portion being women. In Sub-Saharan Africa, 40 percent of smallholder agricultural labour supply is provided by women (Montalvao and Van De Veldea 2020).

Furthermore, COVID-19's prevention and containment measures predominantly disturb informal food markets by considerably affecting women's employment in the food sector, exposing their precarious economic security. As governments implement measures to contain COVID-19, curfews and lockdowns have led to targeting and discrimination of female workers. In Ugandan informal food markets for example, where women make up 66 percent of the workforce, chaos ensued when COVID-19 measures required authorities to forcefully stop women from selling their products. Women were then beaten and brutalized by police who imposed lockdowns and curfews (Aceng 2020). In Mali, curfews have restricted movement and led women to be forced to quit working in the fields while men were permitted to continue work. Therefore, women's productivity and income levels are affected in a discriminatory manner (CARE 2020).

Despite the several barriers women face, they play an instrumental role in supporting food supply chains disrupted by COVID-19 with innovative solutions such as farming during curfews, selling produce in socially distanced open markets, and community meal preparation. However, the resilience displayed by these women is not reflected in national and global responses to the global food insecurity crisis. For instance, the government support systems developed to combat COVID-19 lack recognition of women's issues. In Morocco, women are not permitted to register for COVID-19 relief unless they are widows and Nigeria's women have lost cash-related social protection programs that allow them to earn income to support their households (CARE 2020). Without gender-focused policies, the food insecurity crisis risks derailing the right to a stable food system.

To alleviate food insecurity, the Canadian government recognizes that a gender focus and the integration of women's voices within solutions is critical. Now, to combat issues stemming from the pandemic, Canada must continue supporting a gender focus in its COVID-19 prevention and containment measures by partnering with the FAO and local actors. By doing so, Canada can support women affected by the pandemic through gender-

responsive policymaking, addressing structural barriers they face in the food system, while also strengthening food security by boosting resilience along the food supply chain.

Opportunities

The FAO Working Group

The FAO has formed a Technical Working Group with the aim of supporting food crisis countries amidst COVID-19. The group consists of diverse global actors, such as the World Health Organization and UNICEF. This group will focus on various initiatives, such as crisis communication, awareness and advocacy. Notably, it has established a global COVID-19 food security unit to support data collection and analyses in food crisis countries.
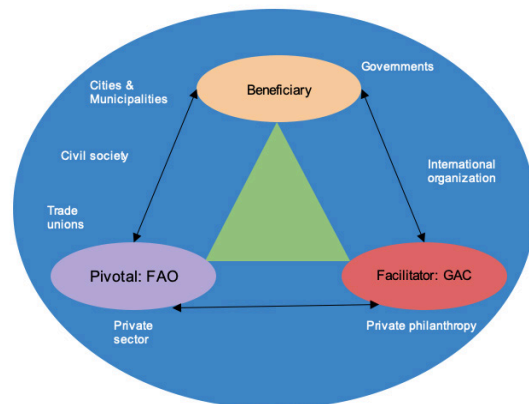
Triangular Cooperation

There is an opportunity for Canada to support a food system that guarantees women's access to food and markets for employment and progresses the aims of its Feminist International Assistance Policy by assisting women in the food system not only in the context of COVID-19, but for future crises. This can be facilitated through a gender-focused triangular cooperation model. This model is well-positioned to meaningfully integrate women within food systems with the values of: shared commitment, result-oriented approaches and solutions, inclusive partnership, transparency and mutual accountability, and innovative co-creation. According to the Canadian Council for International Co-operation, triangular cooperation includes a range of stakeholders that play three key roles:

1. The **beneficiary partner** is the target of the development results to be achieved; ultimately the women farmers themselves. In this case, GAC and the FAO can leverage existing and establish new partnerships with NGOs and governments to collect and analyze gender-disaggregated data to identify those most impacted by food insecurity and COVID-19 policies.

2. The **pivotal partner** has proven experience and shares its resources, knowledge and expertise, often playing an implementing role. There is an opportunity for GAC to partner with the FAO as a pivotal partner. This is due to its role as a specialized UN agency that is well-positioned to lead international efforts to defeat hunger. The organization's working group is currently pursuing similar objectives. The FAO

as a pivotal partner provides technical expertise and capacity in delivering sustainable development outcomes for a resilient food system.

3. The **facilitating partner** connects beneficiary and pivotal partners to form a partnership and provides financial and/or technical support. GAC is well-positioned to ensure the facilitation of gender-focused programming. By ensuring the support reaches its target beneficiary, Canada can play a crucial role in enhancing the participation of women in food systems by scaling their success, thereby building resilient food systems that will alleviate food insecurity.

Figure 1: Triangular Cooperation Model

Source: Authors, adapted from Abdelnaiem and Kindornay, 2020.

A gender-oriented triangular cooperation model offers an optimal route to implement the following recommendations. They have the potential to positively transform food systems by achieving greater impacts both in the short and long term.

Recommendations

Short-term

1. **Carry out gender-disaggregated data collection using triangular cooperation with the FAO working group.** Data collection is essential to fully understand the impact of COVID-19 on food security, as well as on women. Disaggregated data in cooperation with a gender lens can be used to identify beneficiary partners, redefine power relations, and account for current changing social contexts. In addition, it is important to include a context-specific gendered analysis on individual countries as each country faces distinct challenges that create barriers for women.

2. **Develop gender-oriented food market infrastructure.** The development of robust infrastructure for urban and rural food markets that support efficient and inclusive food systems for women should be prioritized. Rather than shutting down markets, they should be redesigned to minimize density. Circulation of clean air, social distance measures, sanitation stations, and washrooms should be integrated. Market regulations will allow women traders and producers to operate in a safe environment through controlled flows of sellers and buyers. Triangular cooperation will allow for the identification of opportunities for collaboration with local civil society and non-governmental health and women's organizations, international organizations, and state authorities to implement such initiatives.

3. **Integrate women into decision-making processes around COVID-19 prevention and containment regulations.** Using triangular cooperation, parties should ensure workers along the food supply chain, the majority of women, are involved in the design and development of preventative measures and initiatives. This can include involving women in carefully designed health information campaigns, distributions of PPE, and working with state authorities to create gender-sensitive COVID-19 directives.

Long-term

1. **Support the success and profitability of smallholder women farmers.** A focus should be placed on strengthening the capabilities of smallholder women farmers to engage in profitable agriculture. Providing inputs directly to women farmers has positive impacts on farm investment decisions, food production and family consumption. Direct access to financial services should be provided to channel produce to markets and access physical capital such as farm machinery, agro-processing, and fertilizers. Triangular cooperation will identify local networks of female farmers where women can leverage their community to share their supply and demand.

2. **Support the implementation of gender-sensitive COVID-19 social protection.** Universal gender-responsive social protection programs and other COVID-19 response programs should be supported to preserve women's livelihoods during the current pandemic, and for future crises. Triangular cooperation practices allow women-focused organizations to participate in the development of social protection programs. New initiatives could include mobile cash transfers and contactless services specifically designed to allow women to operate their businesses to improve income security and maintain consumption levels despite crisis conditions.

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Zack Ahmed, Fatma Alsefaou, Kaitlyn Berriman, Sophia Foster

Taking a Lead: How Canada Can Model Gender Justice in the Global Governance of Health Worker Migration

Suha Fasih, Patricia Masur, Oluwatobi Ogundele, Melanie Slimming

Issue

This policy brief is centered on migrant health workers, specifically female health workers, and is based on the premise that Canada can model and promote gender justice through a stronger global lead in addressing the underutilization and integration challenges faced by health worker migrants.

Background

Underutilization of Foreign Trained Healthcare Workers

 Canada's reliance on foreign healthcare workers is integral to the Canadian healthcare system. Foreign trained health professionals make up a significant portion of the total workforce in both regulated and unregulated fields. As of 2019, 9% of nurses, over a third of pharmacists, and 19% of doctors in Canada were foreign trained (CIHI 2019). For non-regulated professions, such as nurse aides, orderlies, and patient service associates, in 2016, 36% of health workers in the non-regulated professions were foreign trained. This represents an increase in the number of immigrant workers in these non-regulated professions from 22% in 1996 (Turcotte and Savage 2020). This supply is sometimes at the expense of source regions, typically lower-income nations that experience out-migration as a form of brain drain. Within these metrics, Figure 1 shows that female foreign trained healthcare workers play an integral role in the healthcare system. According to

CIHI data, in 2019, women accounted for the majority of foreign-trained pharmacists (60%), nurses (91%), and unregulated health professionals (86%), in addition to making up a significant portion of medical doctors (42.8%) (CIHI 2019; Turcotte and Savage 2020).

The barriers foreign trained health workers face are well documented (Neiterman and Bourgeault 2015). Foreign trained workers are diverse in terms of their ethnic and national origin and educational background; as such, "one-size fits all" credential assessment approaches are less effective than competency-based testing when it comes to professional integration (Covell 2017). Due to regulation and licensure requirements, internationally educated nurses (IENs) are often prevented from working in the field they were trained (Baumann et al., 2010). Evidence also suggests that foreign trained healthcare workers are routinely underutilized and deskilled. For example, immigrants working as nurse aides, orderly or patient service associates are twice as likely (44%) as non-immigrants working in this field (22%) to have earned a degree in a health-related field. Furthermore, 45% of recent immigrants working as care aides had bachelor's degrees or higher, with two-thirds of these workers having nursing degrees (Turcotte and Savage, 2020). Additionally, 32.5% of foreign trained young adults who have a post-secondary education in health remain in non-health occupations, and 47% of young adults with a foreign health degree and employed are underutilized (Hou and Schimmele 2020). Higher rates of underutilization

Figure 1: Percentage of females as a proportion of foreign-trained health workers in Canada, 2010 and 2019
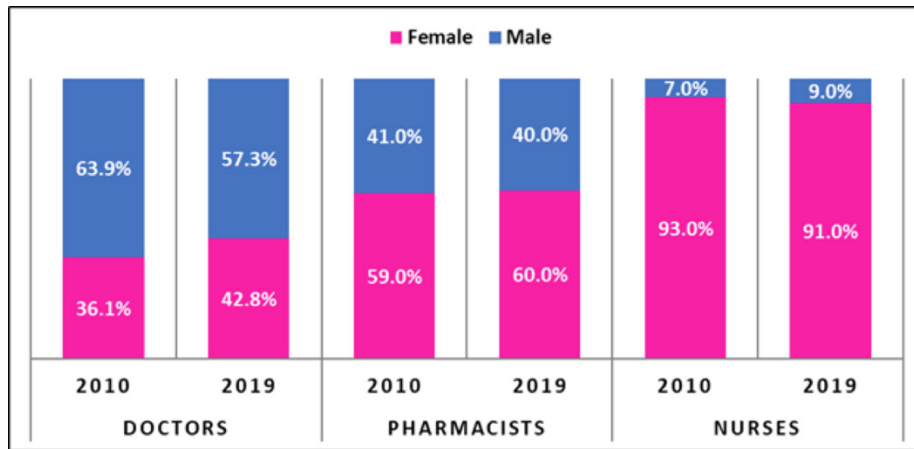
Data source: CIHI 2019.

were observed among women (31%) compared to men (27%), among visible minorities (39%) and Indigenous peoples (39%) than the white population (27%) (Hou and Schimmele 2020).

Among health workers employed in Canada, 83% are women, yet they also represent 85% of underutilized adults. Furthermore, 25.6% of visible minorities were employed in health professions but represent 36% of underutilized adults (Hou and Schimmele 2020). Faced with increasing health demands made acute during the COVID-19 pandemic, this underutilization of health workers is a policy failure in terms of immigrant integration for Canada's skilled immigration policy and for effective health workforce planning. This highlights the need for good practices in governing how internationally educated health workers are integrated into the healthcare system.

The onset of the Covid-19 pandemic has further highlighted existing health workforce gaps and increased the demand for health workers. In 2019, about 54% of the total 1,424,300 health care sector workers in were in technical occupations or supporting roles while 46% were in professional occupations, such as nurses, physicians, pharmacists, and other health diagnosing and treating professionals. Even prior to the COVID-19 pandemic, about 40,300 jobs in health occupations were unfilled by the third quarter of 2019, and the majority of these vacancies were in assistant-level positions (36%), nursing (30%), and technical positions (25%) (Hou and Schimmele

2020). The COVID-19 pandemic has also exacerbated pre-existing gender inequalities in the health sector globally (WHO 2019). As proposed by the ILO, OECD and the WHO, through the International Platform on Health Worker Mobility, an inclusive and equitable gender transformative restructuring of global health and migration systems is required.

This demonstrates the present need for improvement in policies that guide immigrants' access to equivalent professions, which in turn presents the opportunity for Canada to improve upon their existing frameworks and demonstrate global leadership regarding the international recruitment and migration of health workers.

Entry into regulated professions, such as medical doctor, nurse, pharmacist are restrictive compared to non-regulated health professions, affecting the degree to which migrant health workers can practice in Canada (Baumann, 2010). To practice in various regulated health professions in Ontario immigrants must meet the current requirements of the various regulatory agencies (O'Reilly 2000). Meeting such requirements often demands occupation specific English or French language training and educational bridging programs. In some cases, the challenges faced by immigrant health care professionals result in their seeking alternative employment. Evidence suggests that immigrant nurses end up in alternate occupations that are incommensurate with their prior experiences, highlighting the fact that deskilling is

disproportionately experienced by female immigrants (Augustine 2015).

Challenges in integrating foreign trained health professionals abound. For example, in 2018, only 172 of 2,980 Canadian Medical Graduates failed to secure a residency, while 1,360 of 1,758 International Medical Graduates were unmatched (Rahman 2019). However, Canada has adopted methods of addressing underutilization through integration techniques for foreign trained health workers (Neiterman and Bourgeault 2015). For example, the 'CARE' program for internationally educated nurses has doubled the success rate of internationally educated nurses in passing the nursing evaluation exam by increasing the pass rate from 33% to 66%. It works through the PASS and STAR programs. The 'PASS' program assists foreign trained nurses coming to Canada through pre-arrival support and services (CARE annual report 2020).

Increase Commitment to Gender Responsiveness

Over the past decade Canada has increased its commitment towards gender-equality initiatives, even declaring itself the 'First Feminist Government' in 2015 (BBC News, 2016). Since then, Canada has taken strides towards creating feminist policies, including a gender balanced cabinet in 2015. Canada's 2017 Feminist International Assistance Policy emphasizes harnessing the potential of women and girls to contribute fully to inclusive economic growth (Government of Canada, 2017). The policy focuses its investments on improving the health, rights and well-being of women, adolescents and children. By 2021–2022, at least 80% of Canadian aid will target the advancement of gender equality and the empowerment of women and girls. These are all welcome efforts and contributions that Canada has made towards gender equity. Currently, the policy covers over 15,000 people in 65 countries, presenting a lead area for Canada's commitment to action and dedication for international governance on feminist policy issues. The funding required to promote such an agenda is constant, and Canada has showcased its commitment through 5-year investment programmes that specifically target gender equality and the empowerment of women, which represents 15% of Canada's $2.6 billion bilateral development assistance (Government of Canada, 2017). Canada's Feminist International Assistance Policy focuses on six interlinked areas of action: gender equality and the empowerment

of women and girls, human dignity, growth that works for everyone, environment and climate action, inclusive governance and peace and security (Government of Canada, 2020). However, if we consider growth that works for everyone, and inclusive governance not just issues that relate to development overseas, but also apply to Canada's domestic policy in terms of immigrant health worker integration, we can see how policy action here would enhance the federal commitment to gender responsive policy development (Government of Canada, 2017).The significance of gender suggests an area that clearly aligns with Canada's commitment to gender sensitivity and Feminist Foreign Policy. The need for improving existing frameworks has increased given the COVID-19 pandemic, exacerbating pre-existing gender inequities that exist for immigrant health care workers. Canada can champion policy positions and approaches that contribute to inclusive and transformative restructuring of global health through its immigration and health workforce integration systems.

Migration Management & Governance

Due to Canada's heavy reliance on foreign-trained workers, Canada owes a responsibility to the global community to ameliorate the consequences of this labour mobility. Moreover, Canada is well positioned to offer leadership in the area of developing global health workforce strategies for integrated health care provision through fora such as the Global Health Assembly, and paying deeper attention to global agendas on nursing and other health sector workers (WHO 2020). The significance of gender suggests an area that clearly aligns with Canada's commitment to gender sensitivity and Feminist Foreign Policy. Canada has also actively engaged in the global governance of health and migration through other agreements, alliances, and institutions to promote gender justice. **The Global Compact on Safe, Regular and Orderly Migration (GCM) which** is the first globally negotiated cooperative framework that commits to the principle of "gender-responsive" by placing gender equality and human rights at the centre, Canada played an exceptional leadership role by brokering communication among reticent states, building alliance with like-minded countries and facilitating meetings and engagement with civil society engagement. Similarly, Canada has been a signatory to the **World Health Organization's Global Code of Practice** which is key to the governance and international recruitment and migration of health care professionals and the promotion of ethical international recruitment of health personnel to

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ensure benefits for both origin and destination countries. In 2017-2018 Canada invested $5.37 billion in official development assistance (Global Affairs Canada, 2018), and in 2020 799.86 million in official development assistance specifically towards health (Global Affairs Canada 2019). Canada has also made an impact in health migration, global health and gender initiatives in alignment of their commitment towards of SDG #3, good health and well-being.

Despite these current efforts towards migrant mobility, minimal progress has been made to improve the bridging process for internationally educated healthcare professionals. The costs of bridging foreign credentials are prohibitively high and vary according to the respective regulatory board and across provinces and territories (Esses et al., 2021). Migrant health workers must first obtain an Educational Credential Assessment ($200 CAD) additional financial and time costs depending on the specific specialization or regulatory body (Government of Canada, 2021). To become a physician in Canada costs can exceed $11,918 which includes the cost of testing, document processing, and preparatory materials. If additional translation, processing, or testing appeals/changes are required, costs can well exceed $13,000 (Examination and service fees). The authors of this brief, along with Esses et al. (2021) found that Canada needs to increase funding for bridging programs and provide additional financial support for internationally educated healthcare workers to help mitigate the prohibitive costs associated with transferring foreign earned credentials.

Canadian institutions have been a crucial part of the **Global Health Workforce Alliance** in the health workforce crisis facing many countries around the world through advocacy, alliance building, funding, and research. Similarly, **Canada's Feminist International Assistance Policy** commits to harnessing the potential of women and girls to contribute fully to inclusive economic growth. As part of this, Canada has invested in improving the health, rights and well-being of women, adolescents, and children with at least 80% of its aid targeted to the advancement of gender equality and the empowerment of women and girls by 2021–22. Because of the continued reliance of the Canadian health system on internationally trained health workers, deeper engagement with the WHO Global Code of Practice on the International Recruitment of Health Personnel '**the Code**' and the international platform on health worker mobility is required. This can be in

conjunction with other like-minded countries and can form the basis for modelling best practices in this area of governance (Nixon et al. 2018). The need for improving existing frameworks has increased given the COVID-19 pandemic, exacerbating the pre-existing gender equalities that exist in health care and migration. An inclusive and transformative restructuring of global health and migration systems, which is gender responsive and equitable is therefore much needed, and Canada can lead here.

Recommendations

Our recommendations reiterate the fact that Canada can and should do more in pursuing equitable and gender responsive policies for migrant health workers, especially women. For example, Canada's federal, territorial, and provincial governments can play a stronger role in the World Health Assembly regarding the objectives set out in The Global strategy on human resources for health: Workforce 2030 agenda. The recommendations below can be achieved by continued federal-provincial-territorial partnership in immigration and credential issues and through the involvement of the IRCC and GAC.

1. **Addressing underutilization and deskilling of migrant health workers:** Immigrant integration issues can partly be attributed to the division of health responsibilities in Canada between provinces and territories. Each province has its own licensing and regulatory requirements which limits mobility between regions even for Canadian citizens. As such, part of the solution to deskilling and barriers to credential recognition for migrant workers is continued federal-provincial-territorial partnership in immigration and credential issues. In this sense, more standardized approaches to the recognition of international credentials and systems of integration for internationally educated health workers into the Canadian healthcare system are required. For example, the Ontario Fairness Commissioner (OFC) was created through the 'Fair Access to Regulated Professions' Act (2006), and is an example of state policy intervention that continuously works to improve the processes framing the international mobility of health workers (Türegün 2017).

2. **Commitment to gender responsiveness: Canadian feminist foreign policy:** Canada's commitment to its Feminist Foreign Policy can translate to it playing a leading role in the governance of global health worker migration, Canada can share best practices and provide leadership that enables the gender-sensitive treatment of migrant health workers. This can be through Canada's recommitment to the core of the WHO Code of practice on ethical international recruitment practices (WHO 2014).

3. **Need for a continuous policy assessment, evaluation and policy change:** Canada requires its federal government departments to review new policies, legislation, and programmes, including those on migration, through a gender analytical framework called 'GBA+'. Similarly, the International Migration Research Centre (IMRC), the Women in Migration Network and others have partnered with the Government of Canada to launch a gender hub for the Global Compact. Canada also led the development of a communications guide – launched at the Global Forum on Migration and Development in 2020 – designed to help governments, civil society and businesses generate balanced narratives on migration. Greater identification and alignment of these intersectoral policies and programs can be synergized to address global health and gender justice. For future considerations, an analysis could be conducted regarding other minority groups such as migrant workers and people who identify as those within the LGBTQ2+ community.

4. **Immigration perception management:** In the current era of increased nationalism and xenophobia, Canada's public support and favourable perception of immigration is seen as an exception, and the relative success of Canada's immigration is framed by a series of best practices (Hiebert 2016). Such approaches model the potential for Canada to offer global leadership and greater commitment to the multilateral agenda on gender justice and global health initiatives.

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Governing Technology

Unlikely Allies: Reaching Beyond Traditional Halls of Power for AI Global Governance

Aosan Farid, Ashley Mungai, Ben Skinner, Aaesha Shehzad, Stephie-Lea Tabujara

Issue

Due to the potential for Artificial Intelligence (AI) to fundamentally change international affairs, Canada's strategy to advance AI governance that supports a human rights-focused, rule-based international order must engage both traditional allies, as well as non-traditional allies such as member states of the African Union and even traditional rivals - namely China.

Background

AI refers to a machine-based technology that can make autonomous predictions or decisions for a predetermined set of human-defined objectives (OECD 2019). AI technologies have grown and reached global markets, which have permeated national borders through the expanded global network exacerbated by growing widespread internet accessibility. Because of this permeability, it is crucial that Canada engage with the movement to govern AI on a global level to protect human rights both domestically and abroad.

The absence of strong AI global governance threatens the rules-based international order and can result in devastating effects on humanity. Without the global governance of AI, human rights become implicated due to AI's ability to exacerbate economic inequalities, marginalize vulnerable populations, and compromise individual privacy (Thomas, 2019). Moreover, with China arguably leading the AI technological race against the West, China and the West have acted relatively slow on developing a responsible AI framework that mitigates

political, social, economic and planetary instability (Garcia 2021). However, to effectively operationalize responsible AI, there is a critical need for Canada to engage with members of the Global South to further international cooperation and set guidelines and standards to ensure that AI is mutually beneficial and constructive. Further, standards that uphold transparency, accountability, respect for privacy, human control, and mitigation against bias are needed (Fjeld et al 2020). Pursuing a multi-track approach to AI governance that includes traditional allies, non-traditional allies, and potential rivals is consistent with not only the department's mandate to help strengthen the rules-based international order but also advances the aims of the UN's Roadmap for Digital Cooperation (United Nations). Whilst this paper acknowledges the necessity of engaging with the Global South as a whole, we see a fundamental opportunity to begin in Africa. In particular, engagement with the African Union (AU) presents the opportunity to build capacity in AU member-states while informing "responsible AI" that is inclusive of African perspectives. This brief supports a case for Canadian policy-makers to focus their attention on two pathways with high potential for achieving these objectives through AI global governance: resource mobilization and capacity building, and multilateral, multi-stakeholder standard-setting. Once proven successful, this can be replicated as a pilot program in other regions e.g. South America.

Moreover, by focusing on these pathways for global engagement, Canada could leverage its middle-power status to position itself as the bridge between the East-West or North-South AI ecosystems. Though Canada is

not considered a *primary* global leader in AI, its position as a middle power and engagement with AI governance at the national level can be leveraged to help promote AI governance at a global level. Canada has already demonstrated its ability to orchestrate collaboration by engaging with a wide range of public and private sector actors to increase investment and business initiatives within the AI sector. In 2017, the government of Canada appointed the Canadian Institute for Advanced Research (CIFAR) to establish and lead the Pan-Canadian Artificial Intelligence strategy, which injected $125 million into fostering and honing Canada's AI talent and research institutes. (Accenture & CIFAR 2020). Furthermore, Canada has attracted renowned AI pioneers and has garnered growing attention from Big Tech companies to invest in Canadian AI start-ups (Brindle et al. 2021). In combination, Canada's position in global politics and its current engagement with Artificial Intelligence governance at the national level indicates a capacity to have a sustained impact on this space by developing responsible AI policies while making positive and impactful social contributions within Canada.

Working with Traditional Allies on AI Governance

Canada's traditional allies, namely the United States (US) and the European Union (EU), present the most attainable diplomatic partnership opportunities for Canada to engage with. The European Union (EU) is the world's current leader in protecting the data and privacy rights, within the digital realm, of its citizens after it implemented the *General Data Protection Regulations* (GDPR) in 2018. It also created plans for AI technologies that aim to enhance cooperation on AI across the region on the technology's development and governance (European Commission, 2021). Similarly, the US, under the new Biden Administration, is also taking steps to move towards AI governance. For example, it has launched an Artificial Intelligence Research Resource Task Force which aims to provide recommendations to advance innovation in AI (The White House, 2021).

In the current political climate, core global governance institutions such as the United Nations (UN) are often criticized for being inadequate to address global challenges collectively and only accommodate the interests and values of westernized, powerful and privileged states (Caserta 2021; Krasnodebska 2014). This sentiment highlights the limitations of a Western-centric approach to global

governance and the consequences of failing to engage with diverse actors.

Though engaging with traditional allies is a way to leverage existing alliances for sway on the AI global governance stage, Canada should approach leveraging these relationships with caution. The exclusion of the Global South in pursuit of the governance of AI will inherently silence the voices of the world's most under-served groups, and directly violates the UN's Roadmap for Digital Cooperation. Excluding voices from the Global South risks the preservation of colonialist standards, norms and ideologies which subordinate the diverse experiences of the Global South, ultimately jeopardizing the revitalization of the rules-based international order by hindering constructive engagement with diverse partners.

Traditional allyship should be maintained and leveraged, but with the ultimate goal of creating broader participation and inclusion across the globe. Continued engagement with Canada's traditional allies will legitimize the pursuit of AI global governance, and give Canada a more safeguarded pathway to engaging the AI elephant in the room: China.

Engaging with China

While traditionally aligned with the EU and the US in its policy decisions, states that claim to be "honest brokers" such as Canada should use their role as a middle-power to bring competing views to the discussion table and facilitate a single AI governance mandate that all parties accept. To revitalize global confidence in the rules-based international order, especially in AI, Canada must both support and prioritize the West engaging with China on the development of AI governance.

Currently, the People's Republic of China has demonstrated itself as a full-spectrum peer in AI, advanced computing, surveillance and manufacturing, which dominate global markets and institutions that govern the design, development, and use of AI (Allison and Y 2020; Allison 2019). In 2017, China published the *Artificial Intelligence Development Plan*, which stands as the most ambitious national AI strategy to ensure China's economic, military and diplomatic interests. Currently, their predatory economic behaviour controls multiple domains while revising global norms in their steadfast race to be global technological leaders by 2030 (Lewis 2019).

Despite reports of the US leading AI, the US is threatened by China's advancements (Allison 2019), with the Biden

Administration declaring the AI competition with China a "national emergency" (Samp et al. 2021). China's influence over the global AI industry without clearly established regard for legal and ethical considerations poses implications to human rights, national sovereignty, and security. Canada must be wary of AI-enabled weapons systems and the exportation of surveillance technologies, particularly to authoritarian regimes.

Admittedly, given the current geopolitical tensions, there is seemingly little policy room for constructive engagement with China on AI. That being said, any AI global governance regime that does not include China is ultimately detrimental to the rules-based international order and is not in Canada's long-term interests. Since China has demonstrated itself to be an emerging technological giant both domestically and globally using state-led policies, Canada cannot ignore China's rapid AI and technological ascent (Schoff & Ito 2019). Furthermore, Canada cannot restrict its engagement only to include other liberal democratic countries to establish the global governance of A.I. Canada must diplomatically engage with China by leveraging its position as a promoter of rules, stability and openness alongside the EU or the US since Canada does not have the capacity to operate alone. While it is important to remain cognizant of the risks of engaging with China, the benefits of doing so outweigh the risks.

Canada's most sustained impact for engaging China may present itself in the use of its collegial, public, and private AI ecosystems. The educational sector can be used to inform precedence on responsible AI which can be shared with its like-minded allies in pursuit of developing strategic engagements with China to foster and encourage developing accountability mechanisms that follow through with commitments to human rights, democracy, and inclusion. Currently, Canada already utilizes education diplomacy to engage China in the emerging technology space. For example, the University of Waterloo, one of Canada's leading schools for engineering, already has numerous partnerships with leading Chinese institutions to advance research in areas of connected and autonomous vehicle technology (Media Relations 2018). The expansion of existing emerging technologies ecosystems that exist in the academic sector can be used to further engage China in a more politically neutral space leading up to multilateral political engagement, and could positively contribute to this later engagement.

Engagement with Non-Traditional Allies: Opportunities Amidst the African Union

In addition to engaging China, an opportunity also presents itself in other areas of the Global South. The African continent has strategic potential for engagement on AI governance and development. Africa is home to the youngest, fastest-growing population on the planet; the median age in Africa is around 20 years old, compared to the EU's average age of 44 years old (Ausubel 2020). With Africa's young and robust talent pool, several countries are beginning to boast technological hubs including Kenya, Nigeria, Rwanda and South Africa, each of these racing to host the next Silicon Valley for AI and Digital Currency.

These countries, with a wealth of innovation and low regulation, are critical strategic partners for Canada. Based on previous engagements with the African tech industry, an impactful investment for the AU and Canada is through Africa's education sector. Canada can leverage previously developed educational partnership frameworks, such as the Perimeter Institute's Global Outreach strategy (Perimeter Institute 2010) or the African Leaders of Tomorrow Program (Canadian Bureau for International Education 2020). There is massive potential for Canada to feed into the need for capacity building and skills that are highly useful for a variety of AI stakeholders on the continent, such as the African Union Scientific Technical and Research Commission (AU-STRC).

Already-existing stakeholders such as the AU-STRC present a crucial opportunity in advancing GAC's mandate, while also aligning with the UN Roadmap for Digital Cooperation. Contributing to the capacity of these stakeholders while simultaneously including them in AI global governance negotiations will solidify the presence of voices representing the interests of the world's under-served groups, echoing the sentiments of Canada's Anti-Racism Strategy and ensuring a more equitable process in governing AI. To ensure these voices of the Global South are heard, Canada can encourage the creation of a Digital Sovereignty Board, which can serve as a forum for these voices to actively participate in developing AI global governance and allow for issues surrounding the digital sovereignty of nations, and in particular, smaller nations, to be mitigated. A Digital Sovereignty Board that includes a wide breadth of voices will provide an equitable process for establishing global digital sovereignty norms.

Another major development on the continent is the ongoing private sector-driven transcontinental collaboration on AI matters within Africa. Africa is seeing a rise in innovative trans-continental approaches, such as Deep Learning Indaba (Zulu for gathering), which is fostering a community of AI researchers in Africa. Canada should take notice of existing multilateral engagements between Big Tech companies - IBM Research, Google, Microsoft, Amazon - and the African diaspora community to repatriate knowledge back to the African continent. The aforementioned present evidence that points to the technological potential of the African continent.

However, despite the vast potential for AI collaboration and capacity building in Africa, the majority of Canada's bi- and multilateral engagements on AI governance thus far have been with "like-minded liberal democracies." Historically, African voices have been excluded or silenced in technological governance fora, a practice that directly hinders Canada's alignment with GAC's mandate. The exclusion of the Global South, especially those countries most negatively impacted by colonialism, automatically implies the *imposition* of standards rather than democratic collaboration on those standards. The effect of this inherently hinders GAC's mandate of revitalizing the rules-based international order by further alienating the African continent in the international governance setting. In the case of global AI governance, Canada must ensure that inclusion is paramount to the process to avoid replicating past inequities and forms of systemic and institutional oppression. Lastly, it is worth noting that our recommendations for Africa, whilst upholding the principles of inclusion and equity, also complement the current International Development Research Centre's "Artificial Intelligence for Development Africa" (AI4D Africa) program, which aims to build digital and technical literacy within Africa, in order to strengthen her voice in multilateral fora.

Recommendations

1. **Canada should engage with China on AI Governance.** The rise of China will be Canada›s most important foreign policy challenge of the 21st century. Therefore, Canada must increase its investment in foreign service to foster a better relationship with China for the mutual benefit of both countries while balancing consensus and strategic autonomy. Canada can continue to coordinate policy objectives with its allies through multilateral bodies, such as the G7, or individual States such as the US and the EU, which will present to China a united front on the development of AI governance. However, Canada must also prepare itself for the long-term should its allies, the US or the EU be unprepared to advocate on its behalf for which Canada has been traditionally accustomed to. Canada should seek to exercise its diplomacy by developing more sophisticated foreign policies, tools and increasing diplomatic presence overseas to contribute to the discussion of AI governance as an honest broker.

2. **Canada should engage with the African Union, using education diplomacy as a tool for capacity building.** Canada should partner with leading tertiary institutions of the Global South to create AI hubs and institutes. Canada has the potential to reap the most benefit in creating formidable allies by prioritizing academic institutions in the AU - specifically under the branding of an AI African Leaders Program via a public-private partnership with multinational, Big Tech organizations. The suggested objective would be to establish satellite hubs to key universities in the AU that link with Canada's robust AI ecosystems in Edmonton, Toronto, and Montreal; this would broaden Canada's AI talent pool and promote cultural exchange and diversity, so as to invoke Canada's shared values and support the foundations for a rules-based order across the AI ecosystem.

3. **Canada should facilitate a multi-stakeholder task force that intertwines the relationship between AI and Human Rights.** The task force should be composed of a variety of stakeholders, including but not limited to representatives from nations, NGOs, the technology industry,

and academia to maintain a broad range of perspectives and address concerns from all areas of AI governance. The goal of the task force, moreover, should be to set suitable multilateral standards and encourage commitments to human rights, democracy, and inclusion for responsible AI governance. The task force would serve two purposes: 1) create a peer review and verification system within private sectors to operationalize responsible AI; and 2) foster collaboration that is embedded in a rights-based approach. This task force would be prefaced upon a securitization agenda that will secure both Canada's relevance in North America through the multifaceted engagement and support it will gain from human rights pressure groups. Currently, Canada's involvement in the Freedom Online Coalition already demonstrates the Canadian Government's commitment to the protection of human rights online. Through similar collaboration - but with the inclusion of other stakeholders such as tech industry workers and NGOs - the Canadian Government will have the opportunity to even further advance these efforts to protect human rights going forward.

4. **Canada should support the establishment of a Digital Sovereignty Board for Africa** to address the obstacles surrounding national control of Big Data and the vacuum's inequitable AI global governance. The Board should seek diversity and equal representation of both regional organizations and non-state actors to deviate from previous structures based on country size and military prowess. Ultimately, a Digital Sovereignty Board would enable a decolonization agenda, provide underserved groups with more agency over their digital affairs, and address historical structural inequities of the international governance institutions.

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Aosan Farid, Ashley Mungai, Ben Skinner, Aaesha Shehzad, Stephie-Lea Tabujara

Leading in the Digital Age: Promoting a Safe and Inclusive Digital World

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Issue

Canada is uniquely positioned to advance digital inclusion through targeted and strategic initiatives relating to issues of availability, access, civic participation, and trust, specifically in the areas of Internet Communications Technology (ICT) access, digital libraries, technology-facilitated gender-based violence (TFGBV), and digital trust for refugees.

Background

A digital divide persists globally in several areas that hinder digital inclusion and, if left unanswered, will persist as an insurmountable barrier to the equitable realization of human rights in the digital age. Barriers to access and availability of digital infrastructure still exist in several regions of the world, especially along gendered and racial lines. But as more individuals gain access, new concerns are emerging, specifically concerns relating to human rights, civic participation, trust and safety online.

While the internet has been recognized as a critical enabler of human rights and as a space in which human rights can be realized, considerable pressure is being placed on the international human rights framework to affirm the rights of individuals within digital spaces. With the growing application of artificial intelligence (AI) and big data technologies, there is an immediate need to develop mechanisms capable of responding to technology-enabled human rights abuses. Much of the power to protect human rights is in the domain of private technology companies who own and operate the platforms through which global citizens interact. Although there has been little appetite

to regulate these companies, recent issues surrounding misinformation, disinformation, and civil society movements have created a policy window for which Canada can take advantage.

Through targeted and strategic interventions, Canada has an opportunity to advance innovations that both safeguard human rights online and align with its interests as they relate to international development, the strengthening of the rules-based international order, the promotion of democracy, and, last but not least, a feminist foreign policy agenda. Moreover, Canada is in a strong position to advance the global effort for digital inclusion as outlined in the United Nations Roadmap for Digital Cooperation, and to lead in four key areas: addressing problems of access to ICT in the Global South, specifically in Sub-Saharan Africa; enhancing digital civic participation; confronting technology-facilitated gender-based violence; and securing digital trust for refugees.

Access to Internet Communications Technology and the SMART Africa Strategic Vision

In 2019, close to 87 percent of people living in developed countries used the internet, compared to only 19 percent in the least-developed countries (particularly in Sub-Saharan Africa) (International Telecommunications Unions, 2019), a disparity that persists despite the theoretical access to ICT and mobile connections available in nearly every region. Moreover, the hesitancy for private companies to invest in these regions is exacerbated by the lacklustre market environment and lower purchasing power in the

least-developed countries (UNGA, 2020). This creates the need to incentivize companies and establish baselines for future development projects.

With this in mind, the advent of new technology creates new possibilities for establishing ICT within Sub-Saharan Africa, such as low-earth orbit satellites, which have been shown to provide competitive or better service than existing rural options in the United States and Canada (McKetta, 2021). When enabling the region, it is essential to examine power dynamics at play within negotiations over infrastructure investment, a potentially tenuous situation evidenced in the 60 million dollar investment by Huawei into a technology park in Angola (Lusa, 2020).

As Canada works to support the COVID-19 economic recovery in developing countries and promotes greater access and availability of ICT, project design needs to achieve these aims beyond the initiatives that GAC currently supports, namely videlicet La Francophonie and those in the supplementary mandate letter of the Minister of International Development. One option is the SMART Africa Strategic Vision, which aims to bring affordable Broadband internet to the continent. Canadian financial and technical assistance would help the participating African states become players in the knowledge economy and would do so in a way that does not infringe on their sovereignty or interfere with their development priorities.

Enabling Civic Participation through Digital Libraries

Digital citizenship - the ability to participate in society online - increases as individuals gain access to ICTs. A higher percentage of individuals, especially young people, who face barriers to civic participation through traditional political spaces now have the opportunity to engage civically online. However, there are barriers in the online world that impair the fulfilment of digital citizenship (Byrne et al., 2020). Through digital civic engagement, individuals find themselves targeted by bots and specific groups of people that seek to hurt them (Byrne et al., 2020). This harassment and violence can come in many forms and is particularly harmful to young females online. Additionally, misinformation and disinformation can create distrust of online civic spaces and create greater distrust and polarization within communities.

One method of combating these barriers and increasing access and trust is through local libraries. Libraries

have historically served as information advocates to encourage individuals to share knowledge (Johnson, 2017). Libraries provide access to information and technology, especially in rural communities, while fostering trust in information and resources by using local staff and infrastructure (Bill and Melinda Gates Foundation, n.d.). The Global Libraries initiative by the Bill and Melinda Gates Foundation made strides towards strengthening public libraries and providing more technology access and digital literacy resources globally. The Gates Foundations transnational network and experience in working across governments makes them a notable organization to collaborate with. Moreover, Canada already has an existing relationship with them via the Global Canada Initiative.

Additionally, investments in capacity-building for civic actors, such as journalists, to provide them with tools to safely and competently report on civic issues can help build community trust and protect civil society actors online. For example, the NGO Tactical Tech initiative aims to increase digital literacy by providing civil society actors with tools for safer and more informed technology use. This organization has done significant work globally to combat online harassment, violence, and focus on digital trust and literacy for citizens and civil society actors. Tactical Tech's existing transnational network, experience working with different regions in a culturally sensitive manner, and collaboration with the European Union makes it a strong collaborative partner.

Through the Digital Charter Implementation Act of 2020, Canada has already affirmed that accessible, reliable, and diverse information is essential to strengthening and sustaining democratic practices and institutions. In aligning with Canadian support abroad for democracy, human rights, international law and freedom of the press, it is vital that Canada invest in partnerships with international non-profit organizations and initiatives such as Tactical Tech to continue the work of the Global Libraries initiative to work towards safer, more accessible, and more trustworthy online spaces for civic participation.

Tackling Technology-Facilitated Gender-Based Violence through the Freedom Online Coalition

Technology-facilitated gender-based violence (TFGBV) is a problem that affected one-third of women prior to the pandemic (Dhrodia, 2017). With COVID-19 accelerating activity online, the instances and severity of TFGBV have

increased, with harassment up 40 percent since lockdowns began (Burrell & Ruxton, 2020, 25). This violence affects racialized and 2SLGBTQ+ individuals at a higher rate than gender normative or non-racialized populations (Plan International, 2020, 21). Most attacks are perpetrated by individuals unknown to the victim and occur on social media platforms (Dunn, 2020, 7). TFGBV negatively impacts individuals by contributing to social isolation and loss of income, as women adapt their online participation after encountering TFGBV (Amnesty International, 2018). Impacts are of particular concern in developing nations (Dunn, 2020, 22-23). Civic participation is diminished as victims exclude themselves from digital environments, thereby losing trust in the reporting mechanisms of social media companies due to inaction and a lack of transparency (Amnesty International, 2018).

To date, little progress has been made in addressing TFGBV as reporting mechanisms, and protections for victims are largely in the hands of private social media companies. There has been little desire to regulate or pressure companies to address moderation standards. However, attention drawn to content moderation through media reporting on misinformation, disinformation and civil society movements has facilitated a policy window and improved interest on the part of social media companies to address TFGBV. Barriers to success continue to be the international and anonymous nature of the internet.

Multilateral networks like the Freedom Online Coalition (FOC) provide an opportunity for Canada to engage with a multitude of stakeholders in addressing reporting mechanisms and protections for victims while meeting previous international commitments. These include the Group of Seven (G7) commitment to preventing online violence against women and girls (Global Affairs Canada, 2018, 5) and the *Human Rights Council Resolution on Accelerating efforts to eliminate violence against women and girls: preventing and responding to violence against women and girls in digital contexts*. Enhanced engagement through the FOC on issues of TFGBV would also be a demonstration of Canada's commitment to a feminist foreign policy agenda.

Securing Digital Trust for Refugees through the UNHCR Executive Committee

As the international human rights framework evolves to contend with emerging issues in the digital age, the rights of refugees in digital spaces are being neglected and violated. A prevailing desire to advance innovations for the application of AI technologies and identity digitization in refugee support efforts has outpaced the establishment of safeguards to protect their rights, which, if left unchecked, could compromise their safety and security. While limited access and availability of digital infrastructure still pose challenges for this vulnerable group, violations of data subject rights and the right to privacy severely undermine trust and therefore preclude the realization of digital inclusion for refugees. Moreover, the absence of specific protections undermines the objectives of the UN Roadmap for Digital Cooperation, particularly in the areas of Digital Inclusion, Digital Trust, and Digital Human Rights, as well as the Global Compact on Refugees, which establishes a principle of international solidarity for protecting and assisting refugees.

In June 2021, the Human Rights Watch published a report detailing a violation of the rights of approximately 830,000 Rohingya refugees whose biometric data was collected by the UNCHR and Government of Bangladesh seemingly for access to support services, and yet was shared with the Government of Myanmar to facilitate involuntary repatriation (HRW 2021). The required exchange of refugee identity and biometric data for resources and protections means that free and informed consent for data collection is not meaningfully achieved and constitutes a loss of privacy (Data & Society 2019).

In addition to undermining trust, inconsistent data governance practices and unclear data subject accountability mechanisms in organizations experimenting with AI and identity digitization puts the safety and security of refugees at risk and adds another layer of vulnerability to their lives, especially for those who identify as women and/or members of sexual, ethnic, and religious minority groups (Gilliland and Carbone 2020). These outcomes are not aligned with the spirit of the international human rights framework, the rules-based international order, or with Canadian values; therefore, there is a need to develop global norms around refugee digital rights as well as consistent and transparent data governance standards to uphold these rights.

Canada has a long history of global leadership in the international refugee support regime, and the strides made in the last several years have further increased our influence in the Executive Committee of the UNHCR (Rae 2020). As a result, Canada is uniquely poised to take leadership

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on this critical area of digital inclusion by leveraging our convening power and recognized authority to drive action in the most vital multilateral fora in the international refugee support regime. Undertaking meaningful action in this area will advance our feminist foreign policy agenda, as well as our commitments to human rights and to strengthening the rules-based international order.

Recommendations

1. **1. Canada should seek to broaden its ties with SMART Africa and La Francophonie members.** It should provide strategic planning, monitoring, and evaluation to ongoing local initiatives. Specifically, by supporting the development of Internet Exchange Points across Africa which are enabling countries to establish deep-sea fibre optic connections that reduce latency and transit costs, availability and access of ICT are improved across the continent. Canada could demonstrate that it is serious about improving access and doing so will reduce the role insufficient ICT plays in perpetuating inequality.

2. **2. Canada should invest in partnerships with INGOs and initiatives such as Tactical Tech and invest in continuing the work of the Global Libraries initiative of the Bill and Melinda Gates Foundation to advance towards safer, more accessible, and more trustworthy online spaces for civic participation**. By investing in organizations like Tactical Tech that support civil society actors internationally, Canada can work to meet its commitment to support democracy and freedom of the press. The Global Libraries initiative demonstrated that investing in public libraries can create greater and more equitable access to technology while increasing digital literacy and fighting misinformation at a community level. This would align with Canada's commitment to build a foundation of trust and create more access to technology globally.

3. **3. Canada should leverage its position as a member of the Freedom Online Coalition to establish a Working Group on TFGBV.** Canada should strike a new working group with the support of a likeminded co-chair like the United Kingdom to address the topic of TFGBV through an intersectional lens with the goal of issuing a joint statement   aimed at strengthening reporting and removal mechanisms

for perpetrators and providing support mechanisms for victims. Recommendations should examine actions stakeholders can take and incorporate recommendations of previous FOC working groups such as the utilization of the UN Guiding Principles on Business and Human Rights in corporate strategy regarding TFGBV and terms of service enforcement (Freedom Online Coalition, 2017, 23).

4. **4. At the upcoming 72nd meeting of the Executive Committee of the UNHCR, Canada should institute a call for the development of global norms on refugee digital rights and global standards for refugee data governance.** Canada should leverage its comparative expertise in intersectional policy development to lead the development of norms and standards to affirm and protect the digital rights of refugees. In the process, Canada should press the UNHCR to strengthen its own refugee Data Protection Policy. This effort will be in the best interest of Canada's profile as a leader in the international refugee support regime, our feminist foreign policy agenda, and our commitment to strengthening the rules-based international order.

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The New Frontier of Multilateralism: Canadian Policy for Outer Space Debris Removal

Kaleigh Campbell, Kyle Fritz, Spencer Page

Issue

In response to the dangerous congestion of outer space, Canada will need to leverage multilateral partnerships with like-minded actors to ensure that it is poised to reap the benefits of exploration and development in an ecosystem increasingly polluted with debris.

Background

According to the European Space Agency's (ESA's) statistics, there are more than 120,000,000 debris objects in orbit, resulting in over 550 "estimated…break-ups, explosions, collisions, or anomalous events resulting in fragmentation" as of January, 2021 (ESA 2021). The proliferation of spacefaring states (Aerospace Technology 2015) and private actors (Vernile 2018) competing for the commercial and resource gains beyond Earth's atmosphere has stimulated the congestion of outer space. As space becomes progressively congested, especially in low-Earth orbit (LEO), the likelihood of the Kessler syndrome - in which the probability of collision is magnified as the population of orbiting objects multiplies (Newman and Williamson 2018: 32) - increases. Such collisions could catalyze a domino effect whereby debris continues to multiply until the entirety of low-earth orbit is shrouded, rendering space exploration untenable. Consequently, Canada would lose access to a "strategic national asset which underpins everything from [its] national security

to [its] ability to connect Canadians living in rural and remote communities" (Government of Canada 2019: 14).

While grappling with these developments, Canada is faced with a "crisis of international cooperation" (Badré and Tiberghien 2020; Khan and McArthur 2020) that has been further exacerbated by the COVID-19 pandemic. This has prompted unilateral policy-making and the growing prominence of populist governance systems (Roswell 2020). Consequently, democratic middle powers, such as Canada, must find ways to collaborate with like-minded actors to address mutual policy ambitions and strengthen the prospects of multilateral cooperation (Benner 2020) on debris removal. These actors will include partners who share a concern for space pollution and Canada's historical commitment to democracy, human rights, and environmental protection, realized through multilateral and institutional engagement (Lee 2002, Cooper 2015). Canada must also balance its foreign policy with that of its neighbour, and while President Biden has not yet revealed his ambitions for American space policy at the time of writing, his administration has signalled the potential for multilateral diplomacy (Etzioni 2021).

This brief will provide an overview of the technological, economic, legal and security barriers to effective debris removal. It will conclude with policy recommendations that will strengthen Canada's position as a multilateral partner for outer space governance on this issue.

Barriers

Technological advancements prompting further space exploration by private and public actors have increased the amount of debris in orbit; however, investment in debris removal lags behind in both sectors. Corporations (such as SpaceX, Virgin Galactic, Blue Origin) leading the privatization of space must acknowledge that "with the increasing use and commercialisation of space, we boost the risk of catastrophic events associated with orbital debris" (McCoustra 2020). Although private endeavours are not lone contributors, both they and state projects contribute to the congestion of space with objects ranging from rocket booster stages and satellites (functional and non-functional) to unused fuel and paint flakes (West 2019a, Hutaglung et al. 2020). Regrettably, even though active debris removal (ADR) mechanisms have been in development for several years (for example, nanosatellites and nets, electrodynamic tethers, space tugs, laser-based approaches), they "remain largely speculative," (West 2019a: 8). A potential direction for further research is the development of robotic capabilities (Aglietti 2020), which could complement Canada's Lunar Exploration Program investment plan of $1.9 billion "to develop and contribute advanced…AI-enabled deep-space robotic systems" (Government of Canada 2019: 10).

Unfortunately, the expenses of ADR are often understood as "sunk costs" (McCormick 2013: 810). When removing space debris, state and non-state actors face prohibitive financial requirements that do not yield significant returns without some form of government intervention or market stimulation (David 2021). Moreover, much of the current debris in space can be attributed to the primary spacefaring states (United States, Russia, and China) and companies concentrated in those countries (Mosher and Kiersz 2017), raising concerns about the "division of responsibilities and costs" (Rajagopalan 2018: 6) and other unresolved legal questions about ownership and fault-based liability in ADR activities (Wheedon 2011). At the same time, outer space has been constructed in the Outer Space Treaty (OST) as a "global commons to be used by all for peaceful purposes and for the benefit and interest of all" (West 2019b). Most actors, spacefaring or not, rely on outer space for telecommunications, environmental monitoring and security. The Government of Canada itself maintains an interest in outer space infrastructure, especially as it pursues investments in satellite-reliant high-speed internet for all Canadians (Justin Trudeau 2020). Accordingly,

"space debris is a problem for all actors who use outer space," thus "there is greater common interest in managing the problem" (Rajagopalan 2018: 6). Yet, the long-term sustainability of space as a global commons is increasingly dependent on the "'sustainability' of [its] legal regime," particularly for space debris (Martinez 2019: 2).

The international legal regime for outer space is underdeveloped on matters of space debris. At the transnational level, the five core space agreements are: the Outer Space Treaty (1967)*, the Rescue Agreement (1969)*, the Liability Convention (1972)*, the Registration Convention (1975)*, and the Moon Treaty (1979).[1] Space debris does not feature prominently in any of these treaties, nor is it defined within them. Instead, it was the Committee on the Peaceful Uses of Outer Space's (COPUOS) Space Debris Mitigation Guidelines (SDMGs) (2007), which Canada was instrumental in forming (Gilbert, n.d.), that brought intergovernmental attention to the issue (United Nations Office for Outer Space Affairs (UNOOSA) 2019). These guidelines form a framework that includes recommendations to "limit debris released during normal operations" (UNOOSA 2010: 2), "avoid intentional destruction and other harmful activities" and "limit the long-term presence of spacecraft and launch vehicle orbital stages in the low-Earth orbit (LEO) region after the end of their mission" (ibid.: 3). However, its variable implementation could be attributed to the lack of an "enforcement or inspection mechanism" (McCormick 2013: 808) and the "need for the establishment of a legally binding international mechanism to regulate and possibly adjudicate on space debris issues" (Rajapaksa and Wijerathna 2017: 72).

These mechanisms would complement attempts to deter the testing and potential use of anti-satellite weapons (ASATs) - devices which could multiply orbiting space debris and endanger existing infrastructure. Many spacefaring states have already developed anti-satellite capabilities, including China (Coats 2019) and Russia (Harrison et al. 2020). The creation of the United States Space Force "to accelerate space warfighting capabilities" (Kopeć 2019: 123) and counterbalancing efforts made by Japan (Kallender and Hughes 2019) and India (Hussain and Ahmed 2019) have also contributed to anxieties about the further normalization of outer space as a domain of

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1   Those agreements marked with an asterisk are those to which Canada is a signatory.

military conflict. Consequently, "the use of ground-based antisatellite weapons and spacebased kinetic weapons [could] lead to the production of a large number of space debris" (Zhao and Jiang 2019: 56). Such a climate creates a dilemma for Canada who must navigate the tension between realizing its potential as "a leader in pushing to construct a peaceful world space legal regime" (Handberg 2004: 1251) and its strategic partnership with Washington, especially as commitments to the North American Aerospace Defense Command (NORAD) remain a central component of Canadian space policy. Debris mitigation, as a norm, could potentially temper the risks of military activities as the space community increasingly emphasizes reducing "the chance for debris-causing events, including destructive tests of weapons systems, as a clear priority" (West and Doucet 2021: 13). Yet, as long as the need to deorbit existing debris remains, gaps in space situational awareness - the modes of identifying and tracking space debris - will render outer space a site of persistent insecurity not just for spacefaring actors, but for all on Earth who rely on space-based infrastructure.

Technological, economic, legal, and military barriers may also overlap in complex ways that complicate debris removal. For example, even with the technology to remove debris, state permission is still required under international law. Article VII of the OST indicates that signatories "shall retain jurisdiction and control over the space objects carried on their registry" (Popova and Schaus 2018: 9). Consequently, attempts to remove junk could be interpreted as a hostile act (Davey 2017) and exacerbate security tensions. Accordingly, Canada must consider comprehensive approaches to the issue of space debris to ensure that policy gaps do not undercut one another.

Canada's Opportunity

Canada has demonstrated an interest in future space exploration, evidenced by its agreement to the US-led Artemis Accords, and its related participation in the Lunar Gateway project. It also has had historical issues with space debris; in 1978 a "Soviet satellite malfunctioned and fell to Earth," which scattered "radioactive debris over northern Canada" (Hutaglung et al. 2020: 3-4). Additionally, Ottawa was one of the founding contributors to the creation of the SDMGs (Gilbert, n.d.). The future of debris removal offers Canada an opportunity to clench a supportive position in space governance and extend its position as a "world leader in environmental performance" (Fraser Institute 2020) to the orbital plane.

Recommendations

1. **Canada should take a public, pro-ADR stance, with a statement of support and a commitment to engaging in ADR efforts with like-minded allies (such as the United States, Japan, the ESA).** While Canada has advocated for a "sustainable space sector" (Government of Canada 2019), it has not determined a stance on ADR efforts. In contrast, groups like the ESA have identified ADR technologies as a "strategic goal" (ESA, n.d.), and the National Aeronautics and Space Administration (NASA) have been directed to "evaluate and pursue…active debris removal" (Office of Space Commerce 2020: 15). Accordingly, to maintain pace with like-minded allies, Canada must pursue a similar policy approach. Concerningly, this may propel Canada into a complex web of ambiguous jurisprudence on liability and space property ownership (Chatterjee 2015; Popova and Schaus 2018), though creative solutions (such as contracts, memorandums of understanding) have been advanced to respond to such issues (Anzaldua and Hanlon 2018). Additionally, the forthcoming congestion of space will only exacerbate the difficulty of ADR missions, thus straining liability complications further. Consequently, the Canadian Space Agency (CSA) must pursue a supportive policy framework for ADR efforts – noting that Canada will be a facilitator, rather than a leader for such activities – and GAC should expedite the promotion thereof to like-minded partners.

2. **Canada should increase investment in private sector innovation that supports multilateral debris removal efforts.** Globalized public-private networks are driving ADR: both the ESA's and the Japan Aerospace Exploration Agency's (JAXA) pioneering missions are spearheaded by private actors (ESA 2020; Weiner 2021). Canada does not possess the capability to remove debris unilaterally, but the technical competencies being generated in its private sector could advance the knowledge-sharing and interoperability required to sustain current and future multilateral ADR efforts. Improving space situational awareness through debris tracking and identification should be a central feature of Canada's contribution. Innovation, Science and Economic Development Canada (ISED) has already partly funded the Montreal startup NorthStar Earth & Space to

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build the first private satellite constellation for tracking space debris (Government of Canada 2018). Canada can increase its investments in such projects, contracting actors like NorthStar to generate reliable debris tracking systems and, through GAC, share relevant data with Canada's like-minded Inter-Agency Space Debris Coordination Committee (IADC) partners undertaking debris removal missions. Doing so would allow Canada to carve out an important technical and economic niche in multilateral ADR efforts (situational awareness), support the deterrence of more nefarious applications of debris removal technologies and promote the interoperability necessary for clean-up on a global scale.

3. **Canada should focus on strengthening the international legal regime on space debris removal.** If launching trends continue, non-binding regulations, such as the SDMGs, will be unable to prevent the Kessler Syndrome (Popova and Schaus 2018). While a convention specific to the issue would be optimal, in the past, COPUOS has dismissed such proposals (National Research Council 1995). Instead, the modification of existing legal instruments has been identified as a potential means of strengthening the international legal regime on space debris mitigation and removal (Vedda 2017). Article IV of the Registration Convention, which permits states to provide additional details on registered objects in orbit, is a provision that can be operationalized to address the issue (Haroun et al. 2020). Haroun et al. (2020) propose that, in alignment with this provision, states could label objects as "available for salvage," which would permit states or agencies with the appropriate technologies to deorbit the object and return it to the launching state (ibid.: 6). It is thus recommended that GAC collaborate with the CSA to leverage Canada's membership in IADC. Through cooperation with the CSA, GAC would be well-positioned for coalition building within the IADC, and to propose the modification of Article IV of the Registration Convention to the Secretariat of the UN.

4. **Canada should develop and contribute to an Economic Fund for Space Debris Removal.** ADR efforts are undercut by their exorbitant "sunk costs" which disincentivize research and investment (McCormick 2013: 810). An economic fund mechanism would reward clean launch capacity and

successful removal, while stimulating competition and investment for cost-efficient technological advancement (Pelton 2013). Spacefaring actors could pay 5% of their overall costs into the fund and would be eligible for a partial rebate of the original contribution (~20%) once the project has been "certified as a clean "debris-free" launch," and a second rebate (~20%) once the spacecraft has been effectively de-orbited or moved to an orbital graveyard (ibid: 27). The rest of the original contribution would be used to finance the removal of existing debris by certified actors and could be re-invested in the research and development of additional technology to improve ADR capabilities. The Ministry of Finance and ISED should work collaboratively with GAC to develop a Canadian fund at the national level, or in conjunction with the United States, as it remains a central hub of space activity. These efforts could foreground the development of a fund at a global level, which could be administered through an international bank or insurance company (Pelton 2015).

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