L'Institut de la CAD
Cahier Vimy

CDA Institute
Vimy Paper

CDA Institute
L'Institut de la CAD
~ 1987 ~

IRRESISTIBLE FORCES:

LONG-TERM TECTONIC INFLUENCES ON CANADA'S NATIONAL SECURITY

Charles Davies

August | août 2018

No. 38

Vimy Paper Vol. 38 - 2018: Irresistible Forces: Long-Term Tectonic Influences on Canada's National Security
PDF ISBN: 978-1-928082-17-0

IRRESISTIBLE FORCES:

LONG-TERM TECTONIC INFLUENCES ON CANADA'S NATIONAL SECURITY

By Charles Davies

About the Author

Colonel Charles Davies (Retired) is a CDA Institute Research Fellow and a former Canadian Armed Forces Logistics officer and Public Servant. He held a number of senior positions in the Department of National Defence, including four years as the strategic planning director for the Material Group and three years as the senior director responsible for material acquisition and support policy across the Department. He is also a former chair of the senior NATO committee responsible for Alliance policies and processes related to the acquisition and life cycle management of major defence systems. Since retiring from DND in 2013 he has been researching and writing on defence management, defence procurement, and national security and defence policy issues.

Contents

Executive Summary

This Vimy Paper examines three long-term tectonic influences on Canada's national security: geography, demographics, and science. These macro-level factors tend not to be understood well or receive much serious consideration in the public discourse, but in many cases can have powerful and sustained impacts on events. They can also reveal previously unrecognized threats.

The discussion is structured in four parts. Part 1 focuses on geography and its impact on regions of strategic interest to Canada. Part 2 looks at world mortality and demographic trends, and the closely related subject of economics, and considers the cases of selected nations. Part 3 considers science at the macro-level – that is, humanity's collective adaptation to it. Part 4 then draws conclusions about how these issues impact Canada's national security.

Geography

This paper notes that geography is not an absolute determinant of the affairs of mankind, but it has significant influence. It may offer physical constraints, such as in relatively inhospitable regions like the Sahara Desert, or it may offer opportunities such as good harbours and navigable inland waterways that enable long-distance commerce. It can also influence the political development of a nation.

This paper considers the specific cases of Europe, and in particular Russia; Asia; the area encompassing Southwest Asia, the Middle East, and North Africa; sub-Saharan Africa; and North America. It draws a number of conclusions about the impacts on regional security and the implications for Canada, and identifies several themes that are further considered in Part 4:

- The deep role geography has had in shaping the history and underlying national attitudes of countries towards current issues needs to be understood in the planning and execution of regional security responses;
- Analysis of security problems and the sources of conflict needs to go beyond traditional political, social, developmental, kinetic, and related disciplines to include emerging insights from ongoing research elsewhere, including non-traditional areas such as hard science;
- In some regions, the debilitating influence of difficult geography that inhibits communi-

cation as well as economic development and integration needs greater focus. Overcoming these is an essential enabler to creating conditions for durable regional stability; and,

- While mismatches between geographical and political boundaries are always problematic to one degree or another, the example of the Canada-U.S border shows that effective management is possible under the right conditions. The question is what conditions and how to achieve them.

Demographics

This paper then turns to demographics and mortality, showing that the 20th Century was a decisive time in human history with the three greatest historical causes of human mortality – famine, infectious disease, and war – all finally being brought under control and caged. While they have by no means lost all their power, and may periodically see some temporary resurgence, it argues that it is difficult to imagine realistic circumstances under which they could again acquire anything like the same capacity to repeatedly and massively disrupt human civilization that they had throughout earlier history.

This has led to a significant improvement in nations' abilities to predict and plan for future population trends and shape economic development and national capacities accordingly. This paper considers a number of cases of particular relevance to Canada. The analysis here identifies two themes that are further explored in Part 4:

- Nations today have the ability to reliably predict their own and other nations' long-term demographic trends. The insights gained can be used to predict evolving changes to regional and global power relationships – and actively shape a nation's own future place in the world by adopting policies aimed at expanding, contracting, or stabilizing its population – and building the economic and other capacities needed to achieve the status sought; and,

- All nations are moving away from humanity's previous acceptance of premature death as a normal, if unwelcome, occurrence. Advanced nations in particular are becoming increasingly averse to taking casualties in foreign interventions to solve "other peoples' problems".

Science

This paper also notes that there are many issue-specific questions around science and technology, and their impact can range from minor to profound to usefully informing. Their sheer number alone represents a major challenge. A more fundamental question that needs to be considered, however, is humanity's collective adaptation to the march of science. The analysis identifies two themes that are further explored in Part 4. These include:

- The societies and economies of all nations, at varying paces, will continue to evolve in the

direction of allowing artificial technologies to take over a greater and greater role from humans in the business of creating economic wealth. This, combined with coming significant increases in human life spans, will radically change human societies and economies in ways we have not yet begun to seriously consider – and introduce new security challenges in the process; and,

- In the face of an accelerating pace of scientific and technological change, today's established religions and fundamentalist theologies will all be challenged to maintain their relevance and influence within their societies. This will take a very long time to play out so competition among them, and between them and secular humanism, will be a source of confrontation and sometimes conflict for decades to come.

Implications for Canadian National Security

At the end, this paper considers the impact of these tectonic influences and themes on Canada's national security and sovereignty. The analysis identifies a number of weaknesses in how the nation identifies and manages its responses to threats, especially complex ones, and identifies two major long-term national security threats that traditional analyses of more visible and immediate factors would seem to have missed: the threat to our sovereignty posed by the continuing erosion of Canada's economic performance relative to our U.S. continental security partners; and the threat to North America's security posed by Mexico's economic weakness and instability.

Conclusions are drawn about the need to strengthen the nation's strategic management of national security capabilities, and the planning and management of responses to international crises. This paper argues that these activities cannot be effectively managed in the traditional short-term, discrete time blocks aligned to individual four-year government administrations, but instead require consistent, sustained strategies over years or even decades in some cases.

In order to address these issues, the following specific initiatives are proposed:

Establishing Clear Strategic National Priorities:

- Halting and if possible reversing the long-term trend of a widening gap in economic performance between Canada and its key North American partner, the U.S.; and,

- Collaborating with the U.S. and Mexico on a strategy to ensure the ultimate success of Mexico as a North American country.

Improving Strategic Management:

- Developing a more sophisticated capacity for assessing international security problems and how Canada can usefully contribute to finding durable and ultimately successful resolutions;

- Ensuring that efforts to help resolve international problems are consistently explained well and justified to Canadians in an effective and sustained manner; and,
- Development, over time, of a reasonable level of national political consensus around the main thrusts of a sustainable national security policy and strategy.

Improving the Machinery of Government:

- Development of a national security governance architecture capable of delivering effective and reasonably consistent management over the long term;
- Extending the view of national security beyond its traditional scope of military, police, border protection, and other intelligence and kinetic capabilities to include aspects of economic, social, immigration, and other policy areas;
- Broadening the scope of research into issues and problems to look for potentially relevant emerging insights in non-traditional science, technology, and other disciplines;
- Building more robust and effective Whole-of-Government operational machinery for identifying and analyzing global and national security threats, and planning and managing coordinated responses to them; and,
- Substantially improving the long-term management of high-cost, high-value security-related capabilities and their associated investment plans.

Conclusion

This paper concludes that Canada can certainly adopt a "go with the flow" strategy and simply ignore long-term factors, noting that this approach may seem attractive as it both dovetails nicely with the four-year election cycle and avoids the need to engage Canadians in what would be a complex dialogue about time horizons well beyond their normal interest. The problem is that this approach will almost certainly condemn the nation, within the lifetimes of most Canadians – and even more so within the lifetimes of their children and grandchildren – to a much diminished ability to influence the world around it; defend its interests; and assure its security, sovereignty, and prosperity.

It closes with a hope that by highlighting the impact of long-term tectonic influences on Canada's national security, it will stimulate further research, thought, and debate within government, academia, and perhaps wider society about them – and encourage the development of more comprehensive, effective, and durable national security policies, strategies, plans, and capabilities. It calls upon our government and parliament to begin the process of substantially improving the nation's capacities to identify and effectively respond to the long-term risks to Canada's national security and prosperity.

Introduction

National security is one of those "Wicked Problems" facing all governments. It has many moving parts, all of which have wide-reaching connections between themselves and beyond, and no simple solutions. It is also the most important "no-fail" task of government. As then-Prime Minister Paul Martin stated in Canada's first (and so far only) published National Security Policy in 2004, "There can be no greater role, no more important obligation for a government, than the protection and safety of its citizens."[1]

In this context, Canada's 2017 defence policy,[2] along with Foreign Affairs Minister Chrystia Freeland's landmark foreign policy speech in the House of Commons on 6 June 2017,[3] does a respectable job of highlighting many of the more visible trends threatening global and Canadian national security, identifying in particular the evolving balance of power, the changing nature of conflict, and the rapid evolution of technology. Other factors such as climate change and mass migrations are also noted.

These are very real threats, however there are some less visible and slower, but in many ways more powerful, trends inexorably shaping global affairs and affecting Canada's future national security. It is important that these also be understood when considering long-term investments in defence and security capabilities, strategies, and plans.

This paper takes a high-level look at three such tectonic influences: geography, demographics, and science. All three tend to be examined at the micro-level, when they are considered at all. For example, Canada's size and physical position between the U.S. and the former Soviet Union were major factors in Cold War thinking, and remain relevant today. Our sparse population has similarly influenced the thinking of Canadian governments on continental defence since the Second World War. The march of individual technologies, quite properly, preoccupies security planners today.

With that being said, the wider macro-level influences tend not to be well-understood and, to be fair, there is not much current academic research in some of these areas. Perhaps the most comprehensive contemporary analysis of the influence of geography on future world events was published in 2012 – not by an academic, but by American journalist and author Robert D. Kaplan. *The Revenge of Geography*[4] synthesizes the work of a number of 20th Century and earlier theorists, along with his own deep personal understanding developed over the course of a lifetime of travel to some of the remotest corners of the world. The result

is a well-researched, thought-provoking, and very readable narrative. British journalist and author Tim Marshall (another non-academic) has also added useful insights in his 2015 book *Prisoners of Geography: Ten Maps that Explain Everything About the World*.[5]

Probably the best strategic analysis of demographic trends and the evolution of science (among other things) and their impact on humanity was written by a distinguished academic, Professor Yuval Noah Harari of the Hebrew University of Jerusalem. Published in 2014 and 2015, his two books – *Sapiens: A Brief History of Humankind*[6] and *Homo Deus: A Brief History of Tomorrow*[7] – offer remarkable insights into the past, present, and possible future of humanity on Earth. Though academically rigorous, both are intended for a general audience and written in a style that is very accessible. More recently, Harvard University Professor Steven Pinker has added depth to many of the issues discussed by Harari in his 2018 book *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress*,[8] which comprehensively debunks much of the current pessimism and dire prophesy about the state of human civilization.

Given the uniquely broad perspectives they offer, these four works are extensively referenced in this paper, although many other sources are also cited. The subject has many complexities beyond what can be fully explored here, and readers interested in delving deeper are invited to consult this material. Substantially edited selected extracts from an earlier draft of this paper, addressing specific issues, have previously been published by the CDA Institute.[9]

The discussion that follows is structured in four parts followed by some concluding remarks. Part 1 focuses on geography, with a particular emphasis on areas of the globe most relevant to Canada's security interests. Part 2 looks at world mortality and demographic trends, plus the closely related subject of economics, and then considers the cases of selected nations. Part 3 discusses science at the macro-level – that is, humanity's collective adaptation to the march of science. Part 4 then draws conclusions about how the issues discussed in the preceding sections are relevant to Canada's national security.

Part 1 – Geography

The policies of all powers are inherent in their geography.

Napoleon

Overview

Geography is not an absolute determinant of the affairs of mankind, but it has a significant influence. It may impose physical constraints, for example inhospitable regions like the Sahara Desert inhibit agriculture and the development of large, complex societies. Conversely, it may offer opportunities such as good harbours and navigable inland waterways that enable long-distance commerce.

Nations exercise free will in how they deal with their geographical limitations and opportunities, but in many ways geography materially defines the options they have. Modern societies are better able than their predecessors to leverage advanced technologies and economic power to overcome geography,[10] but doing so remains a challenging and costly undertaking.

Geography can also influence the political development of a nation. The earliest European civilizations evolved on Crete and the Cycladic Islands of Greece, close to the older civilizations of Egypt and Asia Minor but largely protected by the sea from invasion.[11] In the modern era, Germany emerged relatively late in history as a confederation of states, none of which had geographically secure or stable borders. The federal state too has faced similar problems throughout its existence, with significant impact on its political development. Great Britain, on the other hand, was relatively secure on its island, consolidated politically much earlier, and developed a stable modern democratic system well ahead of most other countries.[12]

We will consider in more detail how geography has shaped events in a number of regions that have the potential to materially impact Canada's national security and interests.

Europe

While Russia today is a pan-Eurasian power, in its earliest incarnations it developed in the forested northern areas of the flatlands west of the Ural Mountains – mostly away from the successive waves of nomadic invaders that ranged across the southern steppes from the 5th

through the 16th Centuries.[13] This forest protection was not absolute, however, and the Mongol Golden Horde conquered Russia in the 13th Century. Kaplan argues that this event had two significant impacts on the country's development that have rippled through its history and still influence it today: the Mongol occupation cut Russia off from the European Renaissance, so when the country was eventually able to resume relations with Europe it developed a deep sense of cultural inferiority and insecurity; and it reinforced a deep collective recognition that the country essentially had no natural barriers against invasion, leading to a long-standing national obsession with expanding its borders or at least dominating neighbouring regions.[14]

A short diversion into the realm of science is necessary at this point because how such perspectives remain active in societies over time may have more than a cultural basis. Psychologists have identified remarkable regional persistence of negative personality traits and well-being outcomes resulting from periods of intense social stress occurring even centuries ago.[15] Emerging insights from the science of epigenetics further suggest a genetic aspect may exist; stressful events creating particular beliefs or values in one generation could result in the genetic coding of similar beliefs or values in subsequent ones even if no similar stresses are present. This has been demonstrated in mice,[16] and if it is also found to be true in humans, it would provide significant new insights into the difficulty of managing many regional security issues.

It would also open up some new and difficult questions. How do we overcome genetically coded perspectives and successfully encourage consideration of new ones in the political and public discourse within the affected nations? Is there a scientific solution to this problem, and if so, what are the ethical and cultural implications of using it?

Exploration of these kinds of questions demands new inquiry beyond the customary boundaries of the study of conflict, security, and international relations. It is unlikely that epigenetics is the only non-traditional and seemingly unrelated field where ongoing research has the potential to reveal important new insights into national and regional security problems, so both government analysts and academics need to cast a much wider net in their research into their foundations and potential solutions.

To return to the main thread of this discussion of geography, Russia is not unique within Europe in lacking natural barriers. From the Pyrenees and Bay of Biscay in the west to the Urals in the east, and from the Baltic and North Seas in the north to the Alps, Balkans and Carpathian Mountains in the south, most of Europe lacks natural defensive barriers. The major rivers are navigable highways that historically enabled both traders and invaders to move long distances quickly and efficiently.[17] Only densely forested areas (most of which have now been cleared) offered some limited defence against invasion. The relative stability of today's

Europe (Russian border areas apart) is therefore an historical anomaly. For virtually all of its past, Europe was an arena for nearly continual struggles to defend or extend national borders, preserve or extinguish national independence, and establish or escape regional dominance. Not even the Romans succeeded in pacifying and controlling the entire continent.

The current experiment by the majority of European nations to collectively manage their relationships peacefully and to mutual economic benefit through the European Union offers some hope for the future, but it is still maturing. It was probably inevitable that stress cracks would develop from time to time, and they certainly have in the form of the ongoing Greek financial crisis,[18] the continuing problems in responding to the refugee crisis,[19] and of course Brexit[20] – the latter certainly influenced by the former two, among other things. Further challenges may well emerge and it remains to be seen whether the European Union in some ultimate form will become an enduring and successful "polity of polities" around which a stable and peaceful Europe can be built. There is reason for cautious optimism, bolstered somewhat by other long-term trends that will be discussed later.

Asia

China, too, throughout its early history, was threatened by the nomadic peoples of the dry uplands to its north and west.[21] The fact that it endured in various political forms and repeatedly succeeded in re-establishing its territorial integrity says a lot about its national will – but also about the relative strength of its geography. The country's eastern coastline and the four great rivers[22] connecting it to the interior provided it with a relatively stable anchor upon which to build (and rebuild) its polity over many centuries. The construction of the Grand Canal between 605 and 611, linking the Yellow and Yangzi Rivers, greatly enhanced the strength of China's geography by connecting its more productive southern food producing areas to its northern regions, with significant and enduring impact on its national unity.[23] Only in the modern-era did Western nations and Japan, for a time, exploit sea power to dominate China's coastal regions. These events certainly did much to shape modern China and still substantially influence how it views the world around it, including its current approach to boundary disputes in the South China Sea,[24] but China's society and polity have much deeper geography-shaped foundations underpinning them.

South Asia is more of a mixed situation, with its largest country – India – having reasonably clear geographical definition to its southeast, south, southwest (the Indian Ocean) and much of its north (the Himalayas). The region, however, still faces many internal geographical complexities that historically have militated against the development of political unity even within individual nations, let alone regionally. Not only do the boundaries between India and Pakistan, and India and Bangladesh, pose continuing problems because

they are purely artificial with no geographical anchors,[25] South Asia's northern border with China also has artificial disconnects from the actual geography and this continues to cause conflict today.[26] Pakistan's western borders too are largely artificial[27] and substantial areas of that country are mountainous and remote, with cultures and social structures that are very different from the populous lowlands, all of which makes the development and maintenance of a stable, modern polity that much more difficult.

Southwest Asia, the Middle East, and North Africa

West of South Asia stretches one of the most geographically and politically complex regions on earth, comprising the Iranian Plateau, the Arabian Peninsula, and Turkey's Anatolian Land Bridge. Kaplan describes it as:

> …characterized by a disorderly and bewildering array of kingdoms, sultanates, theocracies, democracies, and military-style autocracies, whose common borders look formed as if by an unsteady knife...[T]his whole region … constitutes, in effect, one densely packed axis of instability, where continents, historic road networks, and sea lanes converge.[28]

Closely connected to this large area by geography, and to a degree language, religion, and culture, are North Africa and the Western Mediterranean lands between Egypt and Turkey.

Parts of this vast region do enjoy reasonable geographical coherence and this has influenced their history. Both Turkey and Persia, the forerunner to modern Iran, are generally well-defined geographically and have leveraged that fact in the past to establish empires encompassing much of the region for extended periods. Egypt and Tunisia are also age-old sites of civilization stretching back to antiquity for good reason: the former has always been defined by the Nile and its flanking more austere regions, and the latter similarly benefits from the protection of surrounding desert and mountain areas defining a land geography that enabled the ancient Phoenician city of Carthage to remain secure for centuries before being attacked from the sea and destroyed by the Romans.[29] Many other modern polities in the region, however, have little or no geographical definition, limited, if any, historical roots (many being arbitrary 20th Century creations), and little social cohesion. Small wonder, then, that establishing sustainable political stability in and among them is so difficult.

Sub-Saharan Africa

Further south, most of Sub-Saharan Africa also suffers from a severe mismatch between its geography and historical social structures on the one hand and arbitrarily drawn

national boundaries on the other. Worse, it has few good natural harbours and even fewer navigable rivers connecting them to the interior, and the coastal regions in many areas have historically been isolated from the interior by nearly impenetrable jungle.[30]

Successful development of stable, productive economies and polities in these circumstances continues to be a difficult "work in progress" for respective national leaders and the global community. While it is undeniable that progress is being made,[31] the continent is badly trailing the rest of the world. Like most of the globe, Africa is rapidly urbanizing, however unlike everywhere else, its major cities are not engines of economic growth and global connection. Rather, they are centres of consumption of national resource wealth by a relatively small elite, with the rest of the population left scrabbling to eke out an existence.[32] Kinshasa, the capital of the Democratic Republic of the Congo, has a population of about 12 million – more than London – but only eleven international flights a day from its airport, and basic city infrastructure like roads, water distribution, and sewers are crumbling or non-existent.[33] Overcoming the geographic, economic, social, governance and other challenges of this vast continent will require prodigious effort and investment over a long time.

North America

North America represents an interesting case. For much of the continent, geography generally favours north-south communication and commerce, whether along the east and west coasts, through the Mississippi and St. Lawrence/Great Lakes basins, or on the central plains. An important endeavour in the early political histories of both Canada and the U.S. was overcoming their geographies by building unifying east-west rail connections. Another was establishing a binational relationship that manages rather than tries to fight the natural north-south flow. In both cases, the two countries have been remarkably successful. Kaplan comments that "The American-Canadian frontier is the most extraordinary of the world's frontiers because it is long, artificial, and yet has ceased to matter."[34]

The U.S.-Mexico border region is a different story altogether. To begin with, Mexico is not a geographically unified state. It comprises multiple regions divided by rugged mountain ranges, and northern Mexico in particular is more geographically, socially, and economically connected to the U.S. Southwest than it is to Mexico City.[35] Much of the current border was arbitrarily established by treaty after the Texan War of Independence (1835-1836) and the Mexican-American War (1846-1848) when most of Texas, New Mexico, Arizona, California, Nevada, and Utah were ceded to the U.S.[36] The border bears no relation to the broad, indistinct transitional region that geographically characterizes a significant portion of the area.[37] If history is any guide, the current U.S. administration's intent to try to seal this border, which is only the most recent such effort,[38] is unlikely to be any more successful over the long term

than earlier ones – or for that matter the Soviet Union's post-Second World War fortifying of the Inner German Border.

This does not mean that the U.S. motivation to better defend the border is misplaced. Mexico is a state in considerable trouble, unable to establish effective control over much of its territory or protect its population from organized criminal entities that effectively rule large areas. While the country's government views the problem as one of public security rather than national security,[39] it is not out of the question that Mexico could become a failed state, which would represent a major security threat to North America and the U.S. in particular. We will return to this problem later.

Summary

The strategic influence of geography tends to play out over very long terms, although it can also have substantive short-term impact. One only needs to look at the European pressure points related to the recent migration crisis to see that they are defined primarily by geography. Kaplan's and Marshall's studies focus on the longer-term effects and range far more widely than these few paragraphs describe. They also discuss many more ways that geography has shaped our past and present.

The brief analysis presented here reveals several themes that have particular relevance to Canada's national security, which will be further considered in Part 4. These include:

- The deep role geography has had in shaping the history and underlying national attitudes of countries towards current issues needs to be understood in the planning and execution of regional security responses;
- Analysis of security problems and the sources of conflict needs to go beyond traditional political, social, developmental, kinetic, and related disciplines to include emerging insights from ongoing research elsewhere, including non-traditional areas such as hard science;
- In some regions, the debilitating influence of difficult geography that inhibits communication, as well as economic development and integration, needs greater focus. Overcoming these challenges is an essential enabler to creating conditions for durable regional stability; and,
- While mismatches between geographical and political boundaries are always problematic to one degree or another, the example of the Canada-U.S border shows that effective management is possible under the right conditions. The question, of course, is what conditions and how to achieve them.

Part 2 – Demographics

… and they were given power over a fourth of the earth,
to kill with the sword and with famine and with pestilence…
Revelation 6:8

Overview

The 20th Century witnessed the culmination of one of the most momentous tectonic changes in human history. The three greatest historical causes of human mortality – famine, infectious disease, and war – were finally brought under control and caged. While they have by no means lost all their power, and may periodically see some temporary resurgence, it is difficult to imagine realistic circumstances under which they could again acquire anything like the same capacity to repeatedly and massively disrupt human civilizations that they had throughout earlier history.

Famine

For most of humanity's time on earth, and especially after the agricultural revolution that began some 10,000 years ago,[40] famine was mankind's greatest killer. To cite only a few examples, in ancient Egypt and India, severe drought almost routinely caused mass starvation, often killing five percent or even ten percent of the population. Between 1692 and 1694, fifteen percent of the population of France starved to death following two years of bad weather that caused crops to fail and food reserves to be drained. Many of the survivors were severely malnourished, and this would have had a significant impact on the nation's economy for years. Worse famines struck Estonia in 1695 (twenty percent mortality), Finland in 1696 (up to thirty percent mortality), and Scotland between 1695 and 1698 (mortality up to twenty percent in some areas). [41]

These mass casualties occurred because agricultural societies for most of our history lived close to the edge of starvation much of the time. They had very limited capacity to cushion themselves against crop failures, and almost no capacity to organize the transport of significant volumes of food from areas of plenty to areas of want. (China's construction of the Grand Canal was an early exception.)

Starting in the 19th Century, and blossoming in the 20th, humanity radically reinvented agriculture and the distribution of food to the point where today the negative health effects of overeating kill three times as many people as famine.[42] This is not to suggest that malnutrition

does not exist or that famine deaths no longer occur. Both, unfortunately, continue to plague humanity and progress is uneven around the globe.[43] Their prevalence and human impact, however, is vastly diminished compared to any previous time in our history; both are now largely within the political capacities of national leaders and the international community to eliminate, or at least to substantially mitigate. Today's famine crises have more basis in political rather than natural events,[44] and nutritional insecurity is most often associated with poverty.[45] The enemy is no longer nature, it is ourselves.

Infectious Disease

The second great historical cause of human mortality was infectious disease. Again, the agricultural revolution was much to blame as it allowed the concentration of humanity into teeming cities and a significant expansion of trade and travel. Add often poor sanitation and ignorance about the nature and causes of disease and this created the perfect conditions for serious epidemics to tear through large swaths of society. A plague ravaged Athens between 430 and 427 BCE, killing perhaps a third of the population and seriously weakening its efforts to defeat Sparta and its allies in the long Peloponnesian War; Athens ultimately lost.[46]

In the 14th Century, more than a quarter of the population of Eurasia – estimates vary between about 75 million and 200 million people – were killed by the Black Death. England lost forty percent of its population and the city of Florence fifty percent. European colonization of the Americas was accompanied by the near-annihilation of large parts of the indigenous populations through the introduction of new diseases. The population of Mexico alone fell from its pre-Columbian level of about 22 million to less than 2 million over a period of just 60 years.[47]

These kinds of epidemics periodically swept through human populations killing large proportions of them until the early 20th Century, when urbanization and improved transportation, if anything, was making disease transmission easier. While 40 million people died in the First World War, an estimated 50 million died during the Spanish Flu epidemic of 1918-19.[48]

Today, however, the mass threat posed by pandemic disease is no more than a shadow of its former self.[49] Twentieth century scientific and medical developments radically reshaped our understanding of disease and gave us an array of tools to identify and combat it to the point where it has been possible to begin to eradicate the worst killers. Smallpox, which killed more than 300 million people in the 20th Century, has been essentially eliminated as a threat and humans are no longer even vaccinated against it.[50]

Communicable diseases remain a serious problem, but we are able to contain them. The 2014 Ebola epidemic in West Africa killed 11,000 people,[51] and apart from some isolated cases, was contained to that region and effective defences against the disease were rapidly developed and deployed. A subsequent 2017 outbreak in the Democratic Republic of the Congo saw less than a half-dozen deaths before it was contained.[52] The disease has by no means been eliminated as a threat, and at the time of writing in 2018, a further outbreak has been reported in the same country; news reports, however, indicate that relatively prompt and effective response measures are being taken.[53]

Medical science is not always capable of rapid response to disease – for example, it took more than ten years to recognize, understand, and begin to develop reasonably effective responses to the AIDS pandemic – but this was an exceptionally difficult condition to even detect and identify.[54] Much research remains to be done if we are to bring it completely under control,[55] however we are extremely fortunate that AIDS emerged in the late 20th Century and not a hundred years earlier when we almost certainly would not have been able to develop any effective response, even if we could have somehow determined its pathology.

It is possible that a new communicable disease will emerge to which modern medical science cannot effectively respond, but this is highly unlikely and becoming less so every year with continuing advances in our scientific knowledge and medical technologies. We have turned an important corner.

War and Conflict

The third great historical killer, war, is also coming under control despite the impressions one might get from watching current media coverage.[56] In ancient agricultural societies, about fifteen percent of deaths were from war and other forms of human violence, and war was considered a normal tool for resolving disputes between polities into the early 20th Century.[57] Conversely, in 2015, human violence in all its forms accounted for only about 2.3 percent of deaths, war casualties representing perhaps a tenth of that.[58]

This diminishing trend in mortality due to war is not linear,[59] but as Canada's defence policy correctly observes, the nature of the conflicts involved is different.[60] Other observers agree. Military historian John Keegan wrote as early as 1993 that "War…may well be ceasing to commend itself to human beings as a desirable or productive, let alone rational, means of reconciling their discontents."[61] The change will take time to play out in all regions of the globe, but there is a clear trend in that direction.[62]

The reason is that nations are increasingly recognizing that war is no longer a realistic option for resolving conflicts with their neighbours. For nuclear powers (North Korea and perhaps Iran being current uncertainties) war between them would be suicidal. More fundamentally, the nature of the global economy is reshaping the calculation. Not only are most nations' economies now more highly dependent on trade, which would be seriously disrupted by any major conflict, wealth today is gradually becoming less defined by physical assets such as mines or rich agricultural regions than it is by knowledge.[63] While the former can be physically seized in war, the latter cannot. (It can of course be stolen, but typically through non-lethal means such as cyber theft or other criminal actions.)

While conventional state-on-state warfare is progressively receding as a risk, we are seeing the emergence of new forms of armed conflict. The Canadian defence policy observes:

> The distinction between inter- and intra-state conflict is becoming less relevant in terms of intensity. Intra-state conflicts are increasingly playing out in high threat, high intensity environments with well-armed, organized groups. With states using proxies to commit violence on their behalf, there has been a rise in the last five years in the number of active intra-state conflicts with external troop involvement.[64]

Though locally severe and with some ability to cause effects further afield, these kinds of conflicts tend to lack the capacity to inflict the levels of mass casualties historically seen in traditional inter-state war[65] and it is difficult to see conditions emerging where mortality rates could return to those earlier levels. More likely, the world will continue gradually working out more effective strategies for better containing these localized events and resolving their underlying causes.[66]

Another emergent threat is terrorism, but terrorists generally operate from a position of weakness. They achieve success primarily by indirect means – by undermining public confidence in political leadership and state institutions and by provoking overreactions that alienate segments of the population. Professor Harari describes it this way:

> Terrorists are like a fly that tries to destroy a china shop. The fly is so weak that it cannot budge even a single teacup. So it finds a bull, gets inside its ear and starts buzzing. The bull goes wild with fear and anger, and destroys the china shop.[67]

In 2016, global deaths from terrorist attacks numbered something over 25,600, of which more than a quarter (6,700) were the attackers themselves. Although attacks took place in 104

countries, three quarters of all deaths occurred in just five: Iraq, Afghanistan, Syria, Nigeria, and Pakistan.[68] This casualty rate is of course tragic, but it is also very, very small in relative terms. Well over twice this number were killed globally in cycling accidents the previous year (2015) and in that same year cancer and other non-communicable diseases killed nearly 40 million.[69] Terrorism is not capable of inflicting human casualties on the mass scale previously seen in war.[70] Even in a worst-case use of a weapon of mass destruction, the casualties, however horrific, would not approach the levels that historically almost routinely resulted from war.

Cyber warfare is another emerging 21st Century threat, but while cyber-attacks have considerable potential to seriously disrupt critical infrastructure and other economic targets – in the process potentially inflicting some number of human casualties – this domain of conflict is fundamentally non-lethal in nature. It is difficult to envisage cyber evolving to the point where it could become anywhere near as lethal as the conventional conflicts of our past.

Humanity's Relationship with Death is Changing

This fundamental change in humanity's relationship with death is important. Through virtually all of human existence, death was an accepted, normal occurrence – whether it was the result of one of the three big killers or something else.[71] Today, however, the more advanced a society is the less accepting it tends to be of death. When somebody dies of anything other than old age, we either look for someone to blame or seek ways to prevent a recurrence: build better things; pass stronger laws; increase oversight; spend more on scientific research; or pull people out of that kind of situation. This is a reaction that was unknown prior to the late 20th Century and it is already significantly changing the way nations respond to global security challenges. Among other things, they are becoming less willing to use means that require "boots on the ground" in higher-risk circumstances.

The Demographic Future

The waning influence of famine, communicable disease, and war on human mortality, by largely eliminating recurrent vast-scale mass casualty events, is also bringing some relative stability to long-term global demographic trends. To be sure, tragic occurrences involving hundreds, thousands, or potentially even tens of thousands of deaths can still be expected – some natural, but many our own doing – but these are very unlikely to ever have the impact the three great historical killers once had. Only some catastrophic natural event such as a major asteroid collision or super-volcano eruption[72] – or colossal human stupidity leading to a global conflict involving the wide-scale use of weapons of mass destruction – have the potential to approach those earlier scales of human mortality.

Even so, the study of global demographic trends, like any predictive science, remains difficult and highly dependent upon informed assumptions about the future. A number of organizations do this work, but for the purposes of this paper, we will rely on two principal sources: the United Nations' *World Population Prospects 2017 Revision*[73] and the Population Reference Bureau's *2017 World Population Reference Sheet*.[74] Both documents provide current population data and predicted populations of virtually every country looking out to 2030 and 2050. The UN analysis also looks out to 2100.

A nation's future place in the world will be defined by many variables, and population is one of them. Economic and military power may be even more defining, but both have major demographic components. Indeed, it is impossible to discuss a nation's demographics without reaching into the realm of economics, and vice-versa. We will therefore touch on both in considering how key populations are expected to evolve in the coming decades.

Among the current G7 nations,[75] Canada is forecast to have the highest population growth rate in the coming decades, growing 10-12% by 2030 and 23-28% by 2050, driven in part by its higher immigration rate. Despite this, the country will remain relatively sparsely populated and dispersed – placing ongoing limits on its economic development.[76] At the other end of the scale, Japan is expected to see its population decline by up to 6% by 2030 and as much as 20% by 2050 due to its aging population, low birth rate, and very low immigration. It will retain considerable economic strength, however, due to its still greater population size and density. Germany and Italy both also show longer-term population contraction trends. The U.S. will grow at a rate only slightly less than Canada.

Among the emerging economies of the BRICS nations,[77] South Africa is forecast to lead population growth, increasing by up to 14% by 2030 and 33% by 2050. India, starting from a much bigger base, will be not far behind in growth rate. Russia, on the other hand, may lose up to 2.5% of its population by 2030 and perhaps as much as 8% by 2050. China will also see some population decline by 2050, but unlike Russia, this is the result of deliberate state planning to reign in the demographics of the world's most populous nation.

Another group of nations worth noting is those with populations over 100 million, but which do not formally belong to either the G7 or BRICS groups.[78] Of the seven countries in this category, all are projected to see substantial population growth. Nigeria will lead, with an increase of about 38% by 2030 and 110% by 2050. The lowest rate of growth for the group will be in Indonesia, at 12% by 2030 and 22% by 2050. Of considerable interest to Canada, Mexico is forecast to grow over 14% by 2030, to nearly 148 million people, and 27% by 2050, to over 164 million, or nearly half the projected population of the U.S. We will look at Mexico in more detail later.

In general, it can be expected that nations with shrinking populations may see their national capacities to protect their interests and influence global events diminish proportionally over time, unless they are able to offset the impact with improved economic efficiency, military power, and/or other measures. Nations with growing populations have the potential to act to greater effect provided there is supporting economic growth and adequate national resources are directed towards building the required instruments of state power. These changes in the dynamics around the management of global security and other affairs will be imperceptible year-over-year, but in the long term will be significant.

Summary

Prior to the 20th Century, nations were susceptible to periodic catastrophic reductions in their populations, and hence their economic, military, and other capacities to exert influence or defend their interests. Such setbacks could in extreme cases effectively extinguish long-standing polities, something that happened to a number of North America's pre-Colombian indigenous populations.

But no more. The three major causes of such national calamities – famine, infectious disease, and war – have been brought under effective control and it is difficult to see conditions in which they could again emerge as killers on the scale that they once were. The great killers of today, and our future (other than old age – so far), are nowhere near as deadly and all are within humanity's ability to control to one degree or another.

This analysis reveals two important themes that will be further explored in Part 4. These include:

- Nations today have the ability to reliably predict their own and other nations' long-term demographic trends. The insights gained can be used to plan for evolving changes to regional and global power relationships – and actively shape a country's future place in the world by adopting policies aimed at expanding, contracting, or stabilizing its population – and building the economic and other capacities needed to achieve the status sought; and,
- All nations are moving away from humanity's previous acceptance of premature death as a normal, if unwelcome, occurrence. Advanced nations in particular are becoming increasingly averse to taking casualties in foreign interventions to solve "other peoples' problems".

Part 3 – Science

Rise above oneself and grasp the world.
Archimedes

Overview

On the face of it, science may seem to have little in common with geography and demographics in terms of the scope of this paper, and indeed the pace and visibility of progress in science and technology is breathtakingly fast compared to the other two areas of tectonic influence. We have already seen, however, how medical science has radically altered our world by effectively eliminating infectious disease as a major force capable of wholesale destruction of human populations. Famine has similarly been largely contained as a large-scale threat through advances in agricultural science and transportation technology. Together, they have vastly increased our capacity to produce and distribute food. The significant reduction we have witnessed in human casualty rates from war since the middle of the 20th Century can also be in good measure attributed to scientific and technological advances in weapon precision, sensor systems, and many other areas. Perhaps paradoxically, nuclear weapons have also introduced a new dynamic in the form of Mutual Assured Destruction, which has helped to make total war a less realistic option in confrontations between states that have them.

In considering the impact of future trends in science and technology, there are many other issue-specific questions that can be considered, such as working through the ethical dilemmas surrounding genetic engineering, autonomous systems, expanding artificial intelligence capabilities, and other potentially controversial scientific advances. Their impact can range from minor to profound to usefully informing, an example of the last being the previously mentioned science of epigenetics that can potentially provide important new insights into the foundations of entrenched national perspectives on regional and global issues. The importance of broadening the traditional focus of national security-related study and analysis to look for other possibly relevant insights emerging in seemingly unrelated areas of science, technology, and other disciplines has also been previously noted.

The sheer number of such questions is a major challenge and one that is growing fast, but there is another, broader perspective that needs to be considered, one where the impacts on nations and the global community are more gradual but no less profound – humanity's collective adaptation to the march of science. Here, focus will now be briefly directed.

The Human Impact

Advances in artificial intelligence, robotics, and other disciplines are already radically reshaping not only military operations, but also workplaces and the nature of work. At least two trends will require careful management. The first is increasing productive lifespans. To this point, the natural lifespan of humans (absent premature death from famine, disease, war, or other misadventure) is little changed from our earliest times. Early hunter-gatherers who survived childhood could live into their sixties and some into their eighties.[79] Michelangelo was eighty-eight when he died, Newton was eighty-four, and Galileo seventy-seven.[80] Our longer average lifespans of today are therefore more the result of the elimination of many of the causes of early death than life-extending scientific advances.[81]

This is likely to change in the coming few years as science begins to push back the natural causes of aging and mortality.[82] We are already finding it challenging to adapt to the impact of longer working lives[83] resulting from improved health among older workers coupled with overall aging of populations. As science begins to materially extend natural life spans, this will radically change human societies and our economies in ways we have not yet begun to seriously consider.

The second trend is the displacement of humans from the workplace by advanced technologies. This too is something we are already experiencing, but the trend is accelerating and will have increasing social and economic impacts on human societies. More important, the changes we are beginning to see today are unlike anything humanity has experienced in its history. As Professor Harari has observed:

> Humans have two basic types of abilities: physical abilities and cognitive abilities. As long as machines competed with us merely in physical abilities, you could always find cognitive tasks that humans do better. So machines took over purely manual jobs, while humans focused on jobs requiring at least some cognitive skills. Yet what will happen once algorithms out-perform us in remembering, analysing and recognising patterns?[84]

> These human impacts will inevitably drive some radical changes in national and global economies in ways that are difficult to predict.[85] Moreover, the process will not unfold evenly around the world, with some countries adopting new technologies more quickly and comprehensively than others – and reaping the associated economic, social, and other benefits. This asymmetry could well introduce new strains in international relationships. The change will undoubtedly be progressive over time, but countries at the leading edge

of the wave need to be thinking now about how to adapt their economies to a radically different future,[86] and how to manage the problems created by technological asymmetry between nations in the future global community.

The Religious Impact

A potentially more difficult problem is the disruptive impact of the advance of science and technology on religion. As Professor Harari has observed, "Religion and technology always dance a delicate tango. They push one another, depend on one another and cannot stray too far away from one another."[87] Religions in early agricultural society were fundamentally different from those of hunter-gatherers, and the great modern monotheistic religions are today substantially changed from their original forms.[88] That process of change, however, has not been orderly or smooth. Witness the Catholic Church's efforts to stifle Galileo and the Copernican theory that the earth and planets orbit the sun. It was not until 1758, more than a hundred years after Galileo's death, that the Church lifted its ban on works supporting this theory.[89] Religions may be slow to adapt to the technology of their time, but adapt they must or they will gradually become less and less relevant to their societies.

As with any long-term evolution, progress is not linear. Fundamentalist resurgences will periodically happen and change will occur at different times among different groups. There are still societies practicing animist religions today that are not much different from those of our pre-agricultural ancestors – typically among those that still include hunting and gathering in their subsistence.[90] Today's major religions can likely similarly endure for a very long time, but how widespread and how influential they remain will in large measure depend on how well they manage their adaptation to the technological change that is so much a driver of social change in their populations. The recent rescinding of the long-standing Saudi ban on women driving automobiles[91] and decision to allow cinemas to open[92] may perhaps be as much an attempt to close such a gap as measures to strengthen the economy by encouraging diversification and enabling more women to join the workforce. Religions also need to find a way to compete with the emerging strength of humanism.[93]

Over the long term, it is difficult to see religions that do not adapt to the technologies of their time maintaining any sustained influence, or having any long-term impact on the future course of history. In this kind of shifting dynamic, gradual though it is, the potential for periodic religious conflict is real. Especially for more fundamentalist philosophies, their struggle to establish or defend their credibility and relevance in the face of scientific and social change can be disruptive for a time, as the current struggle against Salafi jihadism demonstrates. There will undoubtedly be further conflicts of this type in the future.

Summary

Science is moving humanity inexorably towards a future that will have important differences from anything we have experienced before, and the pace of this change is also unprecedented. It is too easy to become immersed in the minutiae of the technologies involved and lose sight of the wider strategic picture they collectively paint, but all nations will have to deal with this wider impact. They can do so reactively by waiting for problems to emerge and dealing with them at that time, or proactively by planning for it in advance.
This analysis has revealed two important themes that will be further explored in Part 4. These include:

- The societies and economies of all nations, at various paces, will continue to evolve in the direction of artificial technologies taking over more and more of the business of creating economic wealth. This, combined with coming significant increases in human life spans, will radically change human societies and economies in ways we have not yet begun to seriously consider – and introduce new security challenges in the process; and,

- In the face of an accelerating pace of scientific and technological change, today's established religions and fundamentalist theologies will be equally challenged to maintain their relevance and influence within their societies. This will take a very long time to play out so competition among them, and between them and secular humanism, will be a source of confrontation and sometimes conflict for decades to come.

Part 4 - Implications for Canadian National Security

I skate to where the puck is going to be, not where it has been.
Wayne Gretzky

Overview

The national security threats faced by Canada have many dimensions, all of which need to be understood if we are to respond effectively to them. The tectonic influences discussed in this paper are particularly challenging in that they often remain in the deeper background to a problem. They certainly can have immediate and obvious impacts, for example the way geography has defined the major pressure points in the European refugee crisis. More frequently, however, their impact is long-term and less readily visible as something requiring near-term response, for example the evolving transformation of the respective roles of humans and technology in generating economic wealth.

We ignore these seemingly less immediate questions at our peril though. In many cases, when they do ultimately generate serious problems, it is too late to respond effectively – the solutions needed to have been initiated long ago and pursued consistently over time. All that can be done after the fact is cope with the impact.

Perhaps equally important, proper analysis of tectonic influences can identify new threats that more superficial analysis has missed. At the very least, it offers new insights. In considering their impact on Canada's national security, it is useful to consider the themes identified in the first three parts of this paper in greater detail within the context of the traditional priorities for the country's security and defence policies. As articulated in the 2017 defence policy, they are:

- Strong at home;
- Secure in North America; and,
- Engaged in the world.

Strong at Home

The policy sets out a vision in which the country's "sovereignty [is] well defended by a Canadian Armed Forces also ready to assist in times of natural disaster, other emergencies and search and rescue."[94] As an articulation of defence policy intent aimed at defining a suite

of military capabilities to be acquired or maintained by the nation, it is perhaps a reasonable statement of ambition. In the wider context of national security, however, the concept of "strong at home" requires a broader perspective. Further, the nation's ability to act in the other domains – "secure in North America" and "engaged in the world" – requires the existence of an adequate foundational "home base".

In this context, Canada's national security is in many ways tied to its economy. As a trading nation in an increasingly globalizing economic environment, we of course depend on a stable and open international marketplace and this is a traditional area of focus in defence and security policies and plans. However, there is a more important link between security and economics: a nation's ability to assure its security is highly dependent not only on political will and action, but also its economic capacity to afford the required investments – or as Churchill put it, "The power of any government depends ultimately upon its finances."[95] The symbiotic dependency between the economy and national security[96] is rarely considered in government policy or public debate in Canada, but it is a fundamental dynamic.[97]

Geography presents the nation with significant economic challenges. Not only is Canada the second-largest country on earth, it has vast maritime areas equal to about 70 per cent of the country's landmass, as well as the world's longest coastline.[98] The approximately 5,000 kilometres between St. John's and Victoria is roughly the same as the distance between Lisbon and the Ural Mountains, or the distance between New Delhi and the southern Japanese island of Kyushu,[99] but Canada's population is a mere fraction of that of Europe or Asia. Most of the country is very sparsely inhabited, with its main centres largely concentrated along its southern border with the U.S. The populations of the Yukon, Northwest Territory, and Nunavut combined add up to considerably less than that of the City of St. Catherines, Ontario.[100]

Add to these factors the generally north-south orientation of the natural flow of North America's geography, which forces significant investments in east-west infrastructure for much of our domestic economy to function effectively, as well as the vastness of our northern regions, and Canadian governments will continue to have to overcome a good deal of friction as they try to encourage and guide sustained economic growth.

Clearly, these challenges are not new and most Canadians and their governments have come to see them as just part of the landscape of the country. The problem, however, is that Canada's strength and ability to respond to national security threats is not defined by purely internal considerations. Rather, it is in large measure defined by how the country's capabilities and capacities match up against those of its neighbours, partners, and potential adversaries. Put another way, its ability to act in its own defence or in furtherance of its interests at home,

within North America, or globally, depends very much on what and how much it brings to the table relative to the other actors involved.

In this regard, Canada is on a long-term path of national weakening, particularly compared to its most important neighbour and partner, the U.S. This is best illustrated by the ongoing widening of the gap between the two in the important measure of *GDP per capita* (a major indicator of productivity and economic efficiency). In 1980, Canada's GDP per capita was roughly 90 percent of that of the U.S., but today (2018), it is only about 75 percent.[101] This increasing gap has been the source of warnings by economists for years,[102] and it represents an insidious threat in that its impact only becomes evident over the long term.

Figure 1 shows this economic trend for the three North American economies. (Mexico is included as it will be discussed later.) As may be seen, there have been short periods where the gap between Canada and the U.S. was closed to one degree or another due to unique circumstances at particular times; closing it on a more enduring basis would require the government to take sustained actions over a long period and the current Finance Minister's Advisory Council on Economic Growth has recommended a number of measures for doing so.[103] One of these is increasing Canada's population through higher levels of immigration, and journalist and author Doug Saunders has studied this issue in some depth.[104] He suggests that the foundations of Canada's lagging economic efficiency lie with the combination of our small population and our geographical dispersion, meaning the absence of a critical mass in population density to enable real economic success. There may be merit to his argument.

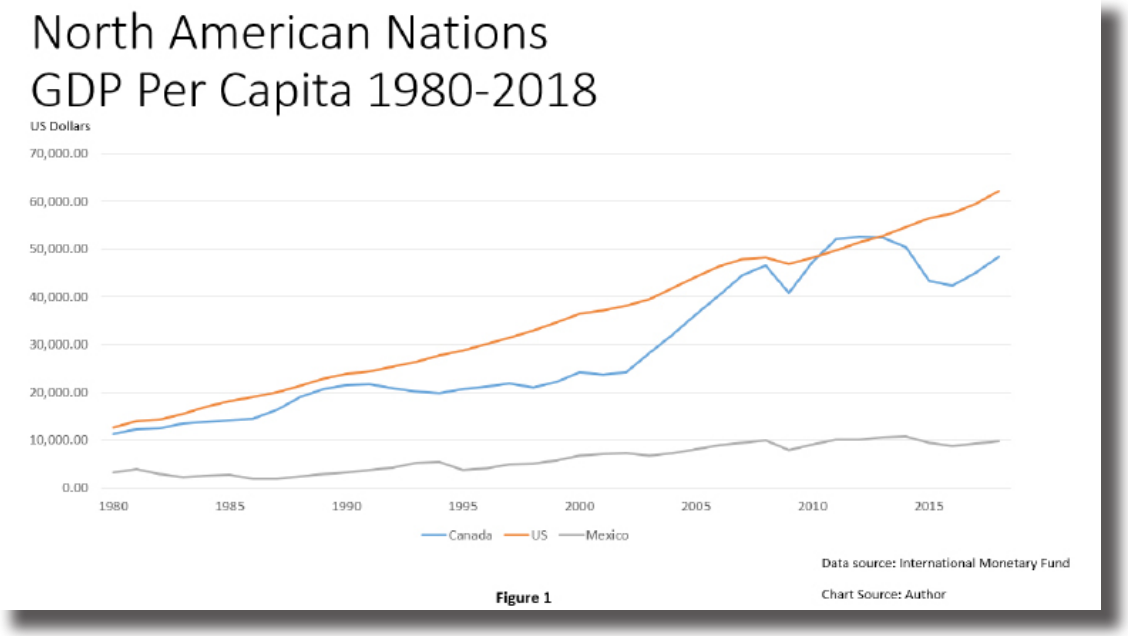

Figure 1

While there are economically successful countries with much smaller populations – Sweden, for example, has a third the population of Canada but a substantially higher GDP per capita[105] – none has a population as widely scattered as Canada's.

Even within our major metropolitan areas, population density is low by global standards. Toronto has a population density of just 4,334.4 people per square kilometer,[106] while Stockholm's is 4,800[107] and New York's is over 10,000.[108] This has significant implications for the efficient delivery of critical economic enablers such as urban transit and municipal utilities, but also seriously limits the potential strength, productivity, diversity, and capacity for innovation in the economy.[109] This is reflected in the number of Canada's "best and brightest" entrepreneurs, scientists, engineers, artists, and others who feel compelled to move to the U.S., Europe, or Asia to achieve their ambitious visions. Some eventually move back after establishing their reputations and careers in more densely populated and vibrant centres, but not all. Just under nine percent of Canadians live abroad, not all of them for these reasons to be sure, but it is clear that the combination of our big geography and low population density is a source of serious ongoing friction in our economy.[110]

These economic efficiency problems need to be addressed because we cannot afford to fall seriously out of step with our North American neighbours. It is our economic performance that determines our national capacity to acquire and sustain the means to assure our security, defend our sovereignty, and meet our continental and global security commitments. The long-term risk to our ability to be "Strong at Home" and preserve our sovereignty is a particular concern – not because of any malicious intent on the part of our neighbour, but because the U.S. will quite legitimately do what it must to defend itself and its maritime and air approaches, which by and large are also Canada's maritime and air approaches.

If Canada's economic capacity relative to the U.S. continues to gradually erode, then so too will the country's ability to afford the investments required to adequately defend its own shores and territory or maintain the kind of secure "home base" necessary for it to be able to shoulder its share of the continental and global security burden in a world of shifting power balances, the weakening ability of international mechanisms to effectively arbitrate and defuse conflicts, and quickly evolving defence and security technologies.[111] The process will be slow, and change therefore largely imperceptible year-over-year, but the impact on Canada's sovereignty and security will be significant over time.

Secure in North America

The gradual downward drift in Canada's economic capacity to be "Strong at Home" is our greatest long-term national security threat and needs to be our top priority, but we

also need to do our part to deal with the greatest threat to North American security – which does not lie in Canada or for that matter in Asia, Europe, or any other continent. It is in the southern part of the North American continent, in Mexico.

As noted earlier, the border between the U.S. and Mexico is artificially defined for much of its length and is often at considerable variance with both the geography of the region and its demographics. On the U.S. side of the border, both history and long-term Hispanic immigration have created a regional population that is closely connected to northern Mexico. Nearly one-third of immigrants to the U.S. come from Western Hemisphere Spanish-speaking regions (Mexico, Central America, South America, and the Spanish-speaking Caribbean) and just under half of these are from Mexico.[112] Immigrants from Mexico tend to settle in the U.S. Southwest and represent a concentrated population among whom Spanish endures as a living language into third generations and beyond,[113] unlike other immigrant communities in the U.S.

The strong geographic, cultural, linguistic, and familial ties in the region led the late University of New Mexico professor Charles Truxillo to predict that the southwestern U.S. states and northern Mexican states would band together to form a new country as early as 2080.[114] This may be one possible outcome, although the challenges of implementing such a solution would be large and result in a whole new set of problems for all of the polities involved. Other alternatives may be preferable, ideally more akin to the U.S.-Canadian border solution. After all, strong cultural, linguistic, familial, and economic ties are equally prevalent along much of it, so in theory something comparable should be possible in the southern portion of the continent.

Unfortunately, several very significant practical problems stand in the way. To begin with, the U.S. and Mexico have the greatest disparity in both GDP and GDP per capita of any two contiguous nations in the world.[115] Mexico's faster population growth rate[116] and generally lower level of technology adoption also add complexity to the relationship. Further, Mexico is locked in a long-term national struggle to try to assert effective state control over its many disparate regions – and it is not at all certain that it will ultimately prevail, or if it does, what success will even look like.

These conditions have bedevilled attempts to better integrate the economies in the southern regions of North America for years and make it impossible to adopt anything resembling the U.S.-Canada border solution. To the contrary, they add up to a festering continental security problem that will only worsen with time unless Mexico can become an economically much stronger, more secure, and successful polity. While much of the responsibility for the prodigious effort required must be, and is being, shouldered by Mexico,

it is equally in the national interest of both the U.S. and Canada that it ultimately succeeds. A common North American strategy for providing appropriate support to Mexico's national development would therefore make sense, with at least three principal areas of focus:

- **Economic developm**ent, aimed at gradually moving Mexico's GDP per capita and its rate of technology adoption closer to those of its North American partners;
- **Infrastructure development**, aimed at overcoming Mexico's geographical fragmentation by strengthening unifying transportation and communications links within the country; and,
- **Justice and internal security**, aimed at building a stronger national capacity to effectively maintain law and order in a way that holds the confidence of Mexico's population.

To be fair, some of this has been happening. While the current U.S. administration has a very particular view of the issues along its southern border, fundamentally the U.S.-Mexico relationship has very deep and broad economic,[117] security,[118] and other roots. For its part, the Canadian government has also been pursuing various bilateral economic initiatives with Mexico since at least 2004,[119] and more recently in the area of justice and security.[120] It is clear in both bilateral relationships, however, that tangible results have been at best limited and there is no evidence of any substantial priority being placed on the effort. Many of the Canada-Mexico discussions in particular have been largely self-driven at the technical level with no clear objectives, no sense of an overarching strategy, and no integrated plan guiding the work.[121]

This needs to change and the continent needs a common strategy for helping Mexico succeed as a North American country. If the necessary foundational conditions can be put on a path to being achieved, and continuing progress can be demonstrated, Mexico would be much better positioned to effectively address the many other challenges it faces. The process would take decades, but at some point it may be possible to begin to replicate the successful model of the U.S.-Canada border in the southern region of the continent. This would be the ultimate sign that North American security and economic strength was no longer threatened by significant internal issues.

In comparison to this internal problem, North America's external threats are easier and more straightforward to manage. Most of them, such as the North Korean and Iranian missile threats, in fact are rooted in local and regional problems that require regional or global responses that may or may not involve participation by Canada, Mexico, or potentially in some cases even the U.S. in a substantive way.

Engaged in the World

Unlike its domestic and continental security obligations, most would see Canada's engagement in global security responses as almost entirely discretionary. Short of a NATO member triggering an Article 5 response,[122] and even then each member state can determine the nature and scale of its commitment, the government can decide whether or not to participate globally, and if so, how and with what resources. As will be seen, however, this perspective is only partly true.

Certainly any decision to contribute to the resolution of international security problems faces the reality that Canadians today have a low tolerance for committing national resources to solve "other people's problems". They have to see a tangible national interest in the mission. Also, like most other Western countries, their tolerance for casualties is much lower than at any previous time in our history. Leaving aside the unique circumstances of the First and Second World Wars,[123] Canada lost over 500 dead between 1950 and 1953 in the Korean War, but stayed in the fight. A little more than half a century later, 158 deaths[124] spread over nearly a decade were a major factor pushing the Canadian government to withdraw its forces from Afghanistan.

Understanding the underlying complexities of the problem to be solved, and the regional dynamics, is a critical foundational step to making and explaining a decision to commit national resources – be they military, diplomatic, financial, or anything else – to an international security response. This would include recognizing that in regions such as Eastern Europe, the Middle East, much of Africa, and elsewhere geography has been a powerful force shaping competition among peoples and states for centuries if not millennia, and this competition continues in one form or another today. Any solutions will need to acknowledge this reality. For example, trying to import Western liberal democratic political institutions into societies that have come to depend upon strong, centralized leadership to protect them from external threats is not likely to be a successful strategy. Solutions need to suit the society as it is, not what some might like it to be – or become. They can and should where possible help set conditions for the society to evolve in beneficial ways, but that evolution has to be principally internally driven and will take time.

Demographics, both current conditions and long-term trends, also need to be understood. Ethnic divisions that cause local dynamics leading to displacement of, or higher mortality in, some groups and not others in a country or region will naturally trigger conflict.[125] Asymmetric demographic growth between regional competitors can also create strains over time, as will significant asymmetry in associated economic strength. The U.S.-Mexico example has been discussed earlier. Israel and the Palestinian Authority offer another

good example of both issues. While today Israel's population is nearly double that of the Palestinians, by 2050, the gap is projected to close to as little as 30%.[126] Palestinian Authority GDP and GDP per capita, however, already just a fraction of Israel's,[127] are both forecasted to substantially lag the latter in growth over the next five years and likely for some time beyond. This worsening economic disparity will inevitably make finding a framework for peaceful co-existence between the two even more difficult the longer the peace process is delayed.

Weaknesses in how polities manage the social impacts of the advance of science and leverage new technologies to modernize their economies can also add domestic and regional stress, especially if significant asymmetries exist. Africa's continuing inability to even remotely match most of the rest of the world in building and managing critical infrastructure, equitably adopting technology, and realizing the potential social and economic benefits of urbanization is a case in point. The extreme rich-poor divide in cities like Kinshasa[128] represents a debilitating anchor against progress. In some cases, religious divides also add serious complexities to conflicts, especially if one or more of the religions are struggling to remain relevant to its population in the face of scientific progress.

When dispute becomes conflict, the moral powers of the United Nations Charter can today lead some protagonists to be less overtly violent in their actions, but for others the old rules still apply. Either way, in order to find durable solutions to regional conflicts in the many areas where geography, demographics, science, or other underlying factors misalign with circumstances on the ground, broad-based comprehensive approaches encompassing political, economic, military, and other capabilities are required,[129] probably for sustained periods of time. Further, the effort cannot be confined to a single protagonist. All of the parties that share the geography need to be included. If not, the stress points will simply move around within the region.

In these circumstances, Canada needs to be very thorough in assessing how it can usefully contribute to finding resolutions. As CDA Institute Research Fellow Colonel (Ret'd) Dr. Mike Cessford has observed, it is important for the government "… *to critically and objectively…determine where (or if) Canada's contributions can achieve tangible, lasting, and positive outcomes*...."[130] It is also important to understand the origins and underlying causes of the problem, as well as factors that might constrain potential solutions and outcomes, their likely durability, and potential paths to achieving them. As we have seen with the science of epigenetics, study of these factors needs to regularly include a scan for potentially relevant emerging insights from ongoing research in seemingly unrelated areas.

Where it is decided to commit national resources, the government must bring Canadians along with it and keep them with it by clearly and continually communicating why

it is necessary and how success is intended to be achieved. This was identified by the Manley Panel as a critical failure in the Afghanistan conflict:

> To put things bluntly, Governments from the start of Canada's Afghan involvement have failed to communicate with Canadians with balance and candour about the reasons for Canadian involvement, or about the risks, difficulties and expected results of that involvement.[131]

More fundamentally, in some cases a direct approach to the problem may actually be counterproductive, or at least ineffective on its own.[132] Indirect approaches may take much longer but ultimately yield more success. For example, long-term commitments to support the development of regional economies through infrastructure, education, training, institution-building, or other investments may be necessary to put in place the foundations that will ultimately enable regional conflicts to be mitigated or resolved. These require sustained focus by successive governments, however, if they are to be successful. A clear plan leading to an achievable and useful end state, supported by a well-defined performance management regime, is essential.

The sheer breadth and complexity of all of this may lead some to conclude that it is "all too difficult" and Canada, as a middle power, should exercise its discretion to mostly stay out of global problems and focus on the home game. To be sure, we have periodically tended towards this kind of approach, but it is one that is extremely myopic and contrary to our national interests.

In order to succeed as a nation and society over the long term, and to escape the previously discussed ongoing erosion of economic performance relative to our U.S. neighbours, Canada needs to consistently succeed economically in the global community. To do this it needs a world order characterized by reasonable stability, equity in economic opportunity and growth, and effective and fair rules-based mechanisms for regulating global affairs. This in turns requires an "all-hands" effort by nations according to their capacity and Canada, both as a G7 country and one that is more than many dependent upon rules-based international systems, needs to be an influential player.

The solution to the breadth and complexity of the problem is therefore not for the country to try to avoid it, but rather to build, sustain, and successfully wield the national machinery needed to act effectively, with allies and partners, in its own interests in response to global security threats.

Implications for Canada's National Security Capability Investments

If there is one overriding lesson to be learned from this examination of tectonic influences on Canada's national security, it is that the nation must take a long-term, integrated view when considering the resulting challenges and potential responses. Failure to do so will condemn the country to a path of progressive erosion in its capacity to defend itself, preserve its sovereignty, protect its interests, and productively influence regional and global events.

We have seen the effect of this within the lifetimes of many living Canadians. The Canada that contributed so significantly to the creation of the post-war world order – the foundation of the United Nations, the creation of NATO and NORAD (and giving them a meaningful share of the initial teeth needed to be effective), the development of then-innovative international mechanisms such as peacekeeping – has lost much of the national capacity and influence it had to do so and stepped back in recent decades to become a more marginal player.[133] Qualitatively, the country can clearly still make useful contributions diplomatically, militarily, in regional development, and in other ways. The scale of its capacity to do so, however, is much reduced in relative terms[134] and hence it is forced to be more selective in what it chooses to take on.

It can perhaps be argued that this has not entirely been a bad thing, as in some cases the resources that had been consumed in those efforts may have been diverted instead to building the domestic economy and social framework we enjoy today. Conversely, it is clear that with better focus of the resources successive governments did allocate to national security capabilities, we could have obtained much better effect.[135] Either way, protecting those social gains for future generations will require sustained effort across a range of national capabilities.

To be successful, this effort needs to be built upon sound and durable foundations designed for not only the many specific threats articulated in *Strong, Secure, Engaged*, and traditionally reflected to varying degrees in its predecessor policies, but also their underlying influences including those discussed in this paper. As a minimum, it needs to be pursued at three levels:

1. **Establishing clear strategic national priorities** for concerted national action to identify, develop, and implement durable plans to address the most serious long-term threats to the country's security and ability to defend its sovereignty and interests. This paper has identified two of the most serious long-term threats to Canada's national security – the continuing widening of the gap in economic performance between Canada and the U.S. and the risk to North America posed by instability and economic weakness in Mexico.

   Significant economic mismatch between neighbouring states inevitably creates pressure to thicken borders in the name of security or economic protection. For

North American countries, the problem is compounded by the continent's geography, which generally favours north-south connections, so border thickening adds further friction to the economic development of all three neighbours – and especially the smaller economies.

Significant asymmetry in the national capabilities that countries can afford to maintain also makes it very difficult to sustain positive, productive, and meaningful partnerships between nations on defence, security, and other matters of mutual importance.
The first priority for Canada should therefore be development and sustained pursuit of strategies to address these two threats. In the case of Mexico, this needs to be a continental strategy developed and pursued by the three partners together.

2. **Improving strategic management** of national security responses, particularly those requiring sustained commitment and consistent approaches. Planning and orchestrating national security efforts represents a formidable challenge as it requires the development of a national security governance architecture capable of delivering effective and reasonably consistent management over timeframes much longer than the typical four-year mandates of Canadian governments. This in turn requires the establishment of a certain level of national political consensus around the main thrusts of a sustainable national security policy and strategy, something no Canadian parliament in recent decades has sought to create. Other countries have faced a similar problem and found ways to respond to it, and Canada needs to begin that process.[136]

   Further, the concept of national security in Canada needs to be extended beyond its traditional scope of military, police, border protection, and other intelligence and kinetic capabilities to include aspects of economic, social, immigration, and other policy areas. There are signs that this is understood to a degree in some parts of government, but clearly not in the central agencies of the Government of Canada or at the political level.[137] It needs to become a fundamental tenet. As discussed earlier, the greatest long-term threat to Canada's national security and sovereignty is the ongoing erosion of our economic performance compared to our U.S. neighbours, and no amount of kinetic capability can address that.

3. **Improving machinery of government** to better integrate the planning and coordination of national security responses within government. In addition to substantially broadening the traditional focus of study and analysis to look for potentially important insights emerging in seemingly unrelated areas of science, technology, and other disciplines, Canada needs to build much more robust and effective Whole-of-Government machinery for identifying and analyzing global and national security threats, and planning and managing coordinated responses to them. The operations of the

interdepartmental Kandahar Provincial Reconstruction Team in Afghanistan were often hampered by legal, policy, and institutional stovepipe obstacles back in Ottawa that no amount of in-theatre collaboration could overcome and most of these structural impediments persist today.[138] This needs to change.

Canada is not alone in encountering this kind of problem. Other nations have also concluded that successful execution of Whole-of-Government efforts requires the creation of new, better integrated mechanisms designed to enable effective planning and management of national responses. Even more important, ways have to be found to successfully and consistently bridge the cultural differences that naturally exist between government departments and agencies.[139] Similar cross-cultural issues exist between the individual armed services of most Western nations and these are typically overcome by extensive joint training, education, and common operational planning methodologies. This model works, and could certainly be applied by those elements of the Canadian government that need to collaborate in international, continental, or domestic national security responses.

In parallel with this operational machinery, Canada needs to substantially improve how it manages its high-cost, high-value defence and security-related capability investments. Typically, these have operating lives extending years or decades and cannot be built or rebuilt overnight because of the complexity and cost of the human, physical, and other elements they comprise. The four-year political cycle of our democracy has made it extremely difficult for successive governments to exercise sound and consistent stewardship of critical national assets ranging from the Royal Canadian Navy[140] to the Parliamentary Precinct.[141] While it would be easy to blame this on the governments that happened to be in power when given problems came to public attention, the reality is that there is a structural defect in our democracy's capital asset and major capability management framework that only parliament can correct through a non-partisan effort.[142]

Summary of Solutions Required

To briefly summarize, the long-term tectonic influences on Canada's national security cannot be effectively dealt with through the traditional short-term responses of individual four-year administrations, or even longer tenures of governments able to put together a sequence of re-elections. They require reasonably consistent sustained strategies over years or even decades in some cases. We have discussed the key strategic and operational level challenges that need to be addressed, and to summarize them they include:

Establishing Clear Strategic National Priorities:

- Halting and if possible reversing the long-term trend of a widening gap in economic performance between Canada and its key North American partner, the U.S.; and,
- Collaborating with the U.S. and Mexico on a strategy to ensure the ultimate success of Mexico as a North American country.

Improving Strategic Management:

- Developing a more sophisticated capacity for assessing international security problems and how Canada can usefully contribute to finding durable and ultimately successful resolutions;
- Ensuring that efforts to help resolve international problems are consistently well explained and justified to Canadians in an effective and sustained way; and,
- Development, over time, of a reasonable level of national political consensus around the main thrusts of a sustainable national security policy and strategy.

Improving the Machinery of Government:

- Development of a national security governance architecture capable of delivering effective and reasonably consistent management over the long term;
- Extending the view of national security beyond its traditional scope of military, police, border protection, and other intelligence and kinetic capabilities to include aspects of economic, social, immigration, and other policy areas;
- Broadening the scope of research into issues and problems to look for potentially relevant emerging insights in non-traditional science, technology, and other disciplines;
- Building more robust and effective Whole-of-Government operational machinery for identifying and analyzing global and national security threats, and planning and managing coordinated responses to them; and,
- Substantially improving the long-term management of high-cost, high-value security-related capabilities and their associated investment plans.

By making these improvements in all three areas – strategic priorities, strategic management, and machinery of government – Canada's national security capabilities, programs, and activities would become much more effective and cost-effective.

Conclusion

If you don't know where you're going, any road will take you there.
George Harrison, Any Road

Canada can certainly adopt a "go with the flow" strategy and simply ignore long-term national security trends and influences, instead addressing specific issues as they arise based on a near-term view. Politically, this approach is attractive as it both dovetails nicely with the four-year election cycle and avoids the need to engage Canadians in what would be a complex dialogue about time horizons well beyond their normal interest. There are also few, if any, discernable consequences that can be immediately attached to political leaders because the year-over-year impacts of long-term trends are largely imperceptible.

The problem is that this approach will almost certainly condemn the nation, within the lifetimes of most Canadians living today – and even more so within the lifetimes of their children and grandchildren – to a much diminished ability to influence the world around it; defend its interests; and assure its security, sovereignty, and prosperity. It also risks materially diminishing the global value and influence of the Canadian model. We should not over-hype the idea that "the world needs more Canada"[143] but nor should we minimize the value of the example we set as a polity and society that, though clearly not without faults, is relatively inclusive, tolerant, fair, principled, and stable.

Our ability to sustain those characteristics, preserve our sovereignty, and defend our national interests requires strong economic foundations and these are being steadily eroded by the continually widening gap in economic efficiency between ourselves, our U.S. neighbours, and other key trading partners. This is a particular problem in the North American context because if Canada's economic capacity relative to the U.S. continues to erode, then so too will its ability to keep up as a meaningful continental security partner. As noted earlier, this represents a serious long-term threat to our sovereignty – not because of any malicious intent on the part of our neighbour, but because the U.S. will quite legitimately do what it must to defend itself and its maritime and air approaches, which by and large are also Canada's maritime and air approaches.

Many factors underlie this complex problem, but as this paper has demonstrated, the most insidious and difficult ones are founded upon Canada's large geography and small demographic. Together, they represent a source of economic friction that is difficult –

though not impossible – to overcome. The current government, to its credit, has taken some measures that may begin to address parts of the problem by investing in infrastructure, raising immigration levels (as did the previous administration, to be fair), and implementing tax measures that may encourage some families to have more children. These actions, however, do not address the full scope of the problem, and if there is an integrating strategy being followed, it is not obvious and has not been articulated to Canadians.[144]

We have also seen that, while direct external threats to Canada's security and prosperity are relatively few, indirect threats can be no less destructive over time. The ongoing insecurity in Mexico with its foundations in geography, economic disparity with its northern neighbours, and other complex factors represents the most substantive risk – not because the instability is likely to spill over directly to our country, but because of its impact on the U.S. American responses to the problem will often inevitably also affect economic intercourse across its northern border, adding further friction to our economy. More fundamentally, it is in all three countries' long-term economic and national security interests that there are strong commercial relationships within the continent founded on domestic stability, effective governance, and reasonable economic compatibility.

Looking globally, trade diversification is important to Canada's prosperity, and a core tenet of its foreign and national security policies has long been the promotion of free movement of goods and services. Such a belief has not been consistently backed up, however, with commitments of resources and sustained effort to contain or eliminate the regional conflicts that threaten it.[145] In most cases, such conflicts will have deep geographical, demographic, social, economic, or other underlying roots. Finding durable resolutions to them means, at least in part, actively working with international partners on a sustained basis to identify and as far as possible address those foundational elements and develop ways to change the dynamics that they have historically produced.

At none of these levels – domestic, continental, or global – will solutions designed around short-term horizons be durable over the long term, although these may be necessary to buy time. Enduring benefit will only come from well-planned and sustained initiatives designed to address the fundamentals of the problems in addition to their more visible elements.

Canada's role and responsibilities in each of these areas are, of course, different. We own the domestic economic problem outright and the fact that we have known about it for years but failed to effectively address it can be blamed on no one but ourselves. It is past time for our nation and its leaders to act, and it is to be hoped that the current government will heed the advice of the Finance Minister's Advisory Council on Economic Growth and others

in taking more substantive steps to change the trend lines and at least halt, if not reverse, the long-term widening of the gap in relative economic performance between Canada and the U.S.

In considering how best to contribute to the resolution of continental and other regional threats to security and prosperity, Canada potentially has much to offer. At the very least, we represent a societal model that many would like to emulate in one way or another. We also have developed a reasonably effective national capacity to find viable compromise solutions to difficult issues, and bring little legacy baggage to conflict resolution tables around the globe. To these strengths we need to develop a greater ability to identify and understand the root causes of regional discord and conflict so that we can contribute meaningfully, with international partners, to the search for ways to mitigate and resolve them. We also need to become more effective in developing, resourcing, implementing, and sustaining the long-term strategies necessary to be ultimately successful.

In order to act effectively – whether domestically, as a continental partner, or globally – Canada needs to strengthen its capacity to respond to the complex array of national security challenges it faces today and will face in the coming decades. It needs to "up its game". Although the purpose of this paper has been simply to explore the problem from a different perspective, this analysis of tectonic influences on national and global security has highlighted fundamental weaknesses in three important areas: strategic priorities, strategic management, and machinery of government.

The problem is complex and needs further research, thought, and debate within government, academia, and wider society – but it also needs to see action towards the development of more comprehensive and effective national security policies, strategies, plans, and capabilities that will yield better long-term outcomes for Canada and future Canadians. This paper represents a call for our government and our parliament to begin the process of substantially strengthening the nation's capacities to identify and effectively respond to the long-term risks to Canada's national security and prosperity.

Endnotes

1 Canada, Privy Council Office, *Securing an Open Society: Canada's National Security Policy* (2004), http://publications.gc.ca/collections/Collection/CP22-77-2004E.pdf.

2 Canada, Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (June 2017), Chapter 4, http://dgpaapp.forces.gc.ca/en/canada-defence-policy/docs/canada-defence-policy-report.pdf

3 Text accessible on the Government of Canada's website at https://www.canada.ca/en/global-affairs/news/2017/06/address_by_ministerfreelandoncanadasforeignpolicypriorities.html.

4 Robert D. Kaplan, *The Revenge of Geography: What the map tells us about coming conflicts and the battle against fate* (New York: Random House, 2012).

5 Tim Marshall, *Prisoners of Geography: Ten Maps that Explain Everything About the World* (London: Scribner, 2015).

6 Yuval Noah Harari, *Sapiens: A Brief History of Humankind* (Toronto: Signal, 2014).

7 Yuval Noah Harari, *Homo Deus: A Brief History of Tomorrow* (Toronto: Signal, 2016).

8 Steven Pinker, *Enlightenment Now: The Case for Reason, Science, Humanism, and Progress* (Toronto: Viking, 2018).

9 See Craig Leslie Mantle and Christopher Cowan, eds., *The Strategic Outlook for Canada 2018*, CDA Institute, Vimy Paper No. 36 (February 2018), Chapter 3, https://cdainstitute.ca/wp-content/uploads/2018/03/strategic-outlook-2018.pdf. Also, Charles Davies, *NAFTA Negotiations – Not Just About the Economy,* CDA Institute Analysis (8 February 2018), https://cdainstitute.ca/davies-nafta-negotiations-not-just-about-the-economy/.

10 Norway, for example is planning to construct the world's first ship tunnel to improve maritime safety and efficiency. See "Move over Suez, hello Stad – Norway to build world's first tunnel for ships", *The Guardian*, 6 April 2017, https://www.theguardian.com/world/2017/apr/06/move-over-suez-hello-stad-norway-to-build-worlds-first-tunnel-for-ships.

11 Kaplan, *Revenge of Geography*, 30.

12 Ibid.

13 Kaplan, *Revenge of Geography*, Chapter 4 and Marshall, *Prisoners of Geography*, Chapter 1.

14 Ibid.

15 For example, see Martin Obschonka et al, "In the Shadow of Coal: How Large-Scale Industries Contributed to Present-Day Regional Differences in Personality and Well-Being", *Journal of Personality and Social Psychology* (20 November 2017), accessed on American Psychological Association Psychnet at http://psycnet.apa.org/doiLanding?doi=10.1037%2Fps_pp0000175.

16 See Gene E. Robinson, "Epigenetics and the Evolution of Instincts", *Science* 356, no. 6333 (7 April 2017), 26-27, http://science.sciencemag.org/content/356/6333/26. Dr. Robinson provided a simplified overview in an interview on CBC Radio's "Quirks and Quarks" on 8 April 2017, http://www.cbc.ca/radio/quirks/photographing-a-black-hole-the-curse-of-the-monkey-god-and-as-canadian-as-1.4060794/how-are-instincts-inherited-a-new-theory-says-epigenetics-1.4061129. See also Virginia Hughes, "Epigenetics: The Sins of the Father", *Nature* 507, no. 7490 (March 2014), http://www.nature.com/news/epigenetics-the-sins-of-the-father-1.14816.

17 A good example is the Vikings' extensive exploitation of this river network. See Kim Hjardar and Vegard Vike, trans., Frank Stewart, *Vikings at War*, English ed. (Oxford: Casemate, 2016), Chapter 6. See also Marshall, *Prisoners of Geography*, Chapter 4.

18 See Doug Bandow, "Greece Heads Into Another Economic Crisis: Time To Finally Exit The European Union?", *Forbes*, January 2017, https://www.forbes.com/sites/dougbandow/2017/01/05/greece-heads-into-another-economic-crisis-time-to-finally-exit-the-european-union/#484947cd607b.

19 See Simon Tisdall, "Divided Europe Seeks a Long-Term Answer to a Refugee Crisis that Needs a Solution Now", *The Guardian*, July 2017, https://www.theguardian.com/world/2017/jul/22/divided-europe-refugee-crisis-italy-serbia-greece.

20 For an overview, see Alex Hunt and Brian Wheeler, "Brexit: All you Need to Know about the UK Leaving the EU", *BBC News*, September 2017, http://www.bbc.com/news/uk-politics-32810887.

21 Kaplan, *Revenge of Geography*, 192 and Marshall, *Prisoners of Geography*, Chapter 2.

22 The Wei, Han, Yellow and Yangzi.

23 Kaplan, *Revenge of Geography*, 192.

24 Howard W. French, "What's Behind Beijing's Drive to Control the South China Sea?", *The Guardian*, July 2015, https://www.theguardian.com/world/2015/jul/28/whats-behind-beijings-drive-control-south-china-sea-hainan.

25 Kaplan, *Revenge of Geography*, Chapter XII.

26 See Steve George and Anish Gawande, "China and India in war of words over Bhutan border dispute", *CNN*, 25 August 2017, http://www.cnn.com/2017/07/03/asia/bhutan-india-border-dispute/index.html.

27 Pakistan's border with Afghanistan, the "Durand Line", is not recognized by the latter even today. See Arwin Rahi, "Why the Durand Line Matters", *The Diplomat*, 21 February 2014, https://thediplomat.com/2014/02/why-the-durand-line-matters/.

28 Kaplan, *Revenge of Geography*, 259.

29 The Phoenicians obtained permission to build Carthage from the rulers of an existing and much older local polity, which further demonstrates the geographic strength of the area. Maria Eugenia Aubet, *The Phoenicians and the West: Politics, Colonies, and Trade* (Cambridge: Cambridge University Press, 1993), Chapter 8.

30 Kaplan, *Revenge of Geography*, 31-32 and Marshall, *Prisoners of Geography*, Chapter 5.

31 Pinker, *Enlightenment Now*, Chapters 5 through 18.

32 Daniel Knowles, "Africa is Urbanising Without Globalising", *The Economist*, 21 April 2017, https://capx.co/africa-is-urbanising-without-globalising/?omhide=true.

33 Ibid.

34 Kaplan, *Revenge of Geography*, 332. By "ceased to matter" he means the two countries have successfully moved beyond classical state-versus-state border conflict. See also Marshall, *Prisoners of Geography*, Chapter 3.

35 Kaplan, *Revenge of Geography*, 335.

36 Ibid., 338.

37 Ibid., 332. It must be acknowledged that Marshall offers a different perspective, suggesting that the desolation of much of the border area makes for a reasonable political boundary (Marshall, *Prisoners of Geography*, Chapter 3). However, this view is at odds with the physical conditions in many locations, including multiple instances where urban centres straddle the border (San Diego/Tijuana, Calexico/Mexicali, Nogales/Heroic Nogales, Douglas/Agua Prieta, El Paso/Ciudad Juarez, Laredo/Nuevo Laredo to name some of the more prominent ones). Kaplan offers a more convincing case.

38 Alisa Cromer, "Brief History: A Timeline of the U.S. Border Wall", *Worldstir*, 2017, http://www.worldstir.com/history-u-s-mexico-border-wall/.

39 "Crime is no longer a national security issue. It is now a public security issue, Attorney General tells the UN", *Mexico News Daily*, 20 June 2017, http://mexiconewsdaily.com/news/crime-is-no-longer-a-national-security-issue/.

40 For a good overview of the agricultural revolution in the wide context of human history see Harari, *Sapiens*.

41 Harari, *Homo Deus*, 3-4.

42 GBD 2015 Mortality and Causes of Death Collaborators, "Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980–2015: a systematic analysis for the Global Burden of Disease Study 2015", *The Lancet* 388 (8 October 2016), 1459-1544, http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(16)31012-1.pdf.

See also Pinker, Enlightenment Now, Chapter 7 and Stephen Adams, "Obesity killing three times as many as malnutrition", *The Telegraph*, 13 December 2012, http://www.telegraph.co.uk/news/health/news/9742960/Obe-

sity-killing-three-times-as-many-as-malnutrition.html.

43 Pinker, *Enlightenment Now*, Chapter 7.

44 See, for example, "Why are there still famines?" *BBC News*, 15 March 2017, http://www.bbc.com/news/world-africa-39039255.

45 For a Canadian overview, see University of Toronto, Department of Nutritional Sciences, *Policy Research Summary: Health, nutrition, and food insecurity* (2017), http://proof.utoronto.ca/resources/research-publications/health-nutrition-and-food-insecurity/.

46 Donald Kagan, *The Peloponnesian War* (Toronto: Viking, 2003), Chapter 7.

47 Harari, *Homo Deus*, 7-9.

48 Jeffery K. Taubenberger and David M. Morens, "1918 Influenza: the Mother of All Pandemics", *Journal of Emerging Infectious Diseases* 12, no. 1 (January 2006), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3291398/.

49 Pinker, *Enlightenment Now*, Chapter 6.

50 Ibid., 64-65.

51 "Ebola: Mapping the Outbreak", *BBC News*, 14 January 2016, http://www.bbc.com/news/world-africa-28755033.

52 Conor Gaffey, "Ebola Returns: What you Need to Know About the Outbreak in Congo", *Newsweek*, 15 May 2017, http://www.newsweek.com/democratic-republic-congo-ebola-609143.

53 Patient Ligodi, "Congo confirms first death in latest Ebola outbreak; 11 people infected", *The Globe and Mail*, 10 May 2018, https://www.theglobeandmail.com/world/article-four-new-suspected-ebola-cases-surface-in-congo/.

54 "History of HIV and AIDS Overview", *Avert*, 29 August 2017, https://www.avert.org/professionals/history-hiv-aids/overview.

55 The Canadian government alone has a major ongoing research program. See the Public Health Agency of Canada's web page for the "Federal Initiative to Address HIV/AIDS in Canada" at https://www.canada.ca/en/public-health/services/hiv-aids/federal-initiative-address-hiv-aids-canada.html.

56 Pinker, *Enlightenment Now*, Chapter 11.

57 For comprehensive illustrations of this, see Hjardar and Vike, *Vikings at War*, and for the early 20th Century, Margaret MacMillan, *The War that Ended Peace* (Toronto: Allen Lane, 2013).

58 "Global Burden of Disease Study 2015", 1484 to 1493. In 2015, self-harm and interpersonal violence accounted for 17 deaths per 100,000 people; and war and legal intervention accounted for 2.3 deaths per 100,000. Deaths from all causes were 850.1 per 100,000.

59 Pinker, *Enlightenment Now*, Chapter 11.

60 *Strong, Secure, Engaged*, 53.

61 John Keegan, *A History of Warfare* (Toronto: Key Porter, 1993), 59.

62 Pinker, *Enlightenment Now*, Chapter 11.

63 Harari, *Homo Deus*, 15.

64 *Strong, Secure, Engaged*, 53.

65 Pinker, *Enlightenment Now*, Chapter 11.

66 Ibid., 164-166.

67 Harari, *Homo Deus*, 18.

68 U.S. State Department, *Country Reports on Terrorism 2016 Annex of Statistical Information* (July 2017), https://www.state.gov/documents/organization/272485.pdf.

69 "Global Burden of Disease Study 2015". Later data was not yet available at time of writing.

70 Pinker, *Enlightenment Now*, Chapter 13.

71 Average global life expectancy remained at around 30 years throughout most of human history until the 19th Century when it began to edge up. It soared to about 70 in the 20th Century and, while differences remain between regions of the globe, continues to rise. See Pinker, *Enlightenment Now*, Chapter 5.

72 NASA views the latter as the more likely threat for the foreseeable future and has begun considering ways to reduce the impact of an eruption of the Yellowstone super volcano. See Jamie Seidel, "NASA's Plan to Defuse Yellowstone's Continent-Killing Super Volcano", *NY Post*, 24 August 2017, http://nypost.com/2017/08/24/nasas-plan-to-defuse-yellowstones-continent-killing-super-volcano/. Also, Pinker, *Enlightenment Now*, 295.

73 Accessed at https://esa.un.org/unpd/wpp/Publications/.

74 Accessed at http://www.prb.org/Publications/Datasheets/2017/2017-world-population-data-sheet.aspx.

75 Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.

76 The Finance Minister's Advisory Council on Economic Growth has recommended increasing im-

migration rates even further in order to strengthen economic growth. See *Attracting the Talent Canada Needs Through Immigration* (20 October 2016), http://www.budget.gc.ca/aceg-ccce/pdf/immigration-eng.pdf. See also Doug Saunders, *Maximum Canada: Why 35 Million Canadians Are Not Enough* (Toronto: Knopf Canada, 2017). Mr Saunders' arguments were also summarized in Doug Saunders, "Far from a Full House", *The Globe and Mail*, 16 September 2017 and published online under the title "Canada needs a fuller house to thrive – but population growth isn't enough", at https://beta.theglobeandmail.com/news/national/doug-saunders-maximum-canada-population-problem/article36275893/.

77 Brazil, Russia, India, China and South Africa.

78 Bangladesh, Ethiopia, Indonesia, Mexico, Nigeria, Pakistan and the Philippines.

79 Harari, *Sapiens*, 51.

80 Harari, *Homo Deus*, 27.

81 Average life expectancy is still continuing to rise nevertheless as overall health continues to improve in most of the world. However, there has been a marked reduction in the *rate* of increase since the 1960s as a greater percentage of those healthier populations enter their 70s, 80s and 90s and run into the historical natural limits of human lifespan. Pinker, *Enlightenment Now*, 58-59.

82 For example, see Karen Weintraub, "Aging Is Reversible—at Least in Human Cells and Live Mice", *Scientific American*, 15 December 2016, https://www.scientificamerican.com/article/aging-is-reversible-at-least-in-human-cells-and-live-mice/.

83 For one discussion of the issues see Michael Hodin, "How To Make Longer Working Lives Work", *Forbes*, 1 August 2016, https://www.forbes.com/sites/nextavenue/2016/08/01/how-to-make-longer-working-lives-work/#5a5983b577fd.

84 Harari, *Homo Deus*, 319.

85 For a good overview of the problem, see Peter Stone et al., "Artificial Intelligence and Life in 2030", *One Hundred Year Study on Artificial Intelligence: Report of the 2015-2016 Study Panel* (Stanford University, September 2016), https://ai100.stanford.edu/2016-report.

86 Ibid., 38-39.

87 Harari, *Homo Deus*, 268.

88 Pinker observes, for example, that a literal reading of the Bible must lead to the conclusion that "The God of the Old Testament murdered innocents by the millions, commanded the Israelites to commit mass

rape and genocide, prescribed the death penalty for blasphemy, idolatry, homosexuality, adultery, talking back to parents, and working on the Sabbath, while finding nothing particularly wrong with slavery, rape, torture, mutilation, and genocide. All this was par for the course for Bronze and Iron age civilizations [that existed when the Old Testament was written]." Pinker, *Enlightenment Now*, 429. Modern religions using these texts of course apply radically different interpretations suited to today's societies and their moralities.

89 Galileo, *Biography*, https://www.biography.com/people/galileo-9305220.

90 See Nurit Bird-David, "'Animism' Revisited: Personhood, Environment, and Relational Epistemology", in *Readings in Indigenous Religions*, Graham Harvey, ed. (London: Bloomsbury Continuum, 2002), Part 1, Chapter 3.

91 Ben Hubbard, "Saudi Arabia Agrees to Let Women Drive", *New York Times*, 26 September 2017, https://www.nytimes.com/2017/09/26/world/middleeast/saudi-arabia-women-drive.html.

92 Abdullah Al-Shihri and Aya Batrawy, "Saudi Arabia to allow movie theaters after decades of ban", *Associated Press*, 11 December 2017, https://www.apnews.com/0b717b6da1174642b3320e4d1f76a2de/Saudi-Arabia-to-allow-movie-theaters-after-decades-of-ban.

93 The Humanist Canada organization defines humanism as: "… a world view which says that reason and science are the best ways to understand the world around us, and that dignity and compassion should be the basis for how you act toward someone else." It is a secularist philosophy rather than a traditional theistic one. See https://www.humanistcanada.ca/. Pinker provides a fairly comprehensive analysis of the movement at Pinker, *Enlightenment Now*, Chapter 23.

94 *Strong, Secure, Engaged*, 59.

95 Winston Churchill, *A History of the English Speaking Peoples: Volume 1 – The Birth of Britain* (Cassell, 1956), 145.

96 It is equally true that a nation's economy depends in large measure on having adequate national security.

97 Former Prime Minister Brian Mulroney made this point in testimony about the current NAFTA negotiations before the U.S. Senate on 30 January 2018, noting that Canada's ability to be an effective security partner was "contingent on the strength of the Canadian economy…." See Lee Berthiaume, "NAFTA 'did not happen by accident,' Mulroney says during defence of trade deal", *Canadian Press*, 31 January 2018, https://www.nationalnewswatch.com/2018/01/31/mulroney-offers-spirited-defence-of-nafta-during-washington-ap-

pearance-2/#.WspAv4jwZPY.

98 Canada, Department of National Defence, *Leadmark 2050: Canada in a New Maritime World* (undated), http://navalassoc.ca/wp-content/uploads/2016/05/Leadmark-2050-13-May-2016.pdf.

99 Distances measured using Google Earth.

100 According to the 2016 census, the three territories combined have a population of about 120,000, while St. Catherines, Ontario has a population of approximately 133,000. Statistics Canada, *Census Profile, 2016 Census*, http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E.

101 Current data from the IMF *World Economic Outlook Database, 2018*, http://www.imf.org/external/pubs/ft/weo/2018/01/weodata/weoselgr.aspx; historical IMF data published by Knoema, https://knoema.com/pjeqzh/gdp-per-capita-by-country-statistics-from-imf-1980-2022.

102 Most recently, the Finance Minister's Advisory Council on Economic Growth in a set of three reports. Their projections are even less optimistic than the IMF's. See Canada, Department of Finance, Finance Minister's Advisory Council on Economic Growth, reports accessible at https://www.budget.gc.ca/aceg-ccce/home-accueil-en.html.

103 Ibid.

104 His proposed remedy for Canada is a planned gradual population increase to 100 million, which would require both increased immigration and effective measures to increase natural population growth. See Saunders, *Maximum Canada*.

105 $58,345 USD per capita versus $48,466 USD for Canada. The U.S. is $62,152. See IMF *World Economic Outlook Database, 2018*.

106 Data from Statistics Canada's 2016 census report, "Table1: The 10 highest population densities among municipalities (census subdivisions) with 5,000 residents or more, 2016", https://www.statcan.gc.ca/daily-quotidien/170208/t001a-eng.htm.

107 "Stockholm Population 2017", *World Population Review*, http://worldpopulationreview.com/world-cities/stockholm-population/.

108 Over 27,000 per square mile. New York City Department of City Planning, *New York City Population* (2015 data), https://www1.nyc.gov/site/planning/data-maps/nyc-population/population-facts.page.

109 Saunders, *Maximum Canada*, Chapter 6.

110 Ibid.

111 For an excellent example of this latter phenomenon see Elsa B. Kania, *Battlefield Singularity: Artificial Intelligence, Military Revolution, and China's Future Military Power*, Center for a New American Security (November 2017), https://www.cnas.org/publications/reports/battlefield-singularity-artificial-intelligence-military-revolution-and-chinas-future-military-power?utm_content=bufferc9814&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer.

112 U.S. Department of Homeland Security, *2016 Yearbook of Immigration Statistics*, https://www.dhs.gov/sites/default/files/publications/2016%20Yearbook%20of%20Immigration%20Statistics.pdf. Later statistics not available at time of writing.

113 Kaplan, *Revenge of Geography*, 338.

114 Associated Press , "Professor Predicts 'Hispanic Homeland'", *Citizen Review Online*, April 2004, http://citizenreviewonline.org/april2004/professor.htm.

115 IMF *World Economic Outlook Database, 2018*.

116 United Nations, Department of Economic and Social Affairs, *World Population Prospects - 2017 Revision* (New York, 2017), https://esa.un.org/unpd/wpp/publications/Files/WPP2017_KeyFindings.pdf and the Population Reference Bureau, *2017 World Population Reference Sheet*, https://www.prb.org/2017-world-population-data-sheet/.

117 M. Angeles Villarreal, *U.S.-Mexico Economic Relations: Trends, Issues, and Implications*, Congressional Research Service (27 March 2018), https://fas.org/sgp/crs/row/RL32934.pdf.

118 Clare Ribando Seelke and Kristin Finklea, *U.S.-Mexican Security Cooperation: The Mérida Initiative and Beyond*, Congressional Research Service (29 June 2017), https://fas.org/sgp/crs/row/R41349.pdf.

119 Canada, *Canada-Mexico Partnership - 2016 Annual Report*, http://www.canadainternational.gc.ca/mexico-mexique/2016cmp-pcm.aspx?lang=eng.

120 *Canada-Mexico Cooperation on Security and Defence.*

121 *Canada-Mexico Partnership - 2016 Annual Report*.

122 "The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them, in exercise of the right of individual or collective self-defence recognised by Article 51 of the Charter of the United Nations, will assist the Party or Parties so attacked by taking forthwith, individually and in concert with the other Parties, such action as it deems necessary, including the use of armed force, to restore

and maintain the security of the North Atlantic area…" *North Atlantic Treaty*, Article 5, http://www.nato.int/cps/en/natohq/official_texts_17120.htm.

123 These were both national efforts on a scale not likely to be seen again anytime soon. All conflicts since then have involved relatively modest commitments of national resources.

124 Not to forget or in any way minimize the often less-publicized sacrifices of those others who subsequently died from operational stress and other injuries resulting from the mission.

125 Although it is important to place this problem in context. For example, 95% of neighbouring ethnic groups in the former Soviet Union and 99% in Africa co-exist peacefully. Pinker, *Enlightenment Now*, 405.

126 United Nations, *World Population Prospects – 2017 Revision*; the Population Reference Bureau estimate is more conservative at 59%.

127 Palestinian Authority GDP is about 20% of Israel's and GDP Per Capita just 7%. Data obtained from the IMF *World Economic Outlook Database, April 2017*, https://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx; IMF *Report to the Ad Hoc Liaison Committee, West Bank and Gaza* (August 2017), http://www.imf.org/en/Countries/ResRep/WBG; and Trading Economics, *Palestinian GDP 1994-2017*, https://tradingeconomics.com/palestine/gdp.

128 Knowles, "Africa is Urbanising Without Globalising".

129 NATO has established doctrine around comprehensive approaches. See NATO, *A "Comprehensive Approach" to Crises*, updated June 2016, http://www.nato.int/cps/en/natohq/topics_51633.htm. A good overview of how a number of countries have adopted it is to be found in Commander Dave Woychesin and Miriam de Graaff, eds., *The Comprehensive Approach to Operations: International Perspectives* (Kingston: Canadian Defence Academy Press, 2013).

130 Colonel (Ret'd) Dr. Michael Cessford, *Canada and Contemporary Peacekeeping Operations*, CDA Institute Analysis (February 2016), http://cdainstitute.ca/canada-and-contemporary-peacekeeping-operations/.

131 *Report of the Independent Panel on Canada's Future Role in Afghanistan* (the Manley Panel, January 2008), 20, http://publications.gc.ca/collections/collection_2008/dfait-maeci/FR5-20-1-2008E.pdf.

132 A fact well illustrated by Steve Coll in "Canada had it right when it comes to Afghanistan", *The Globe and Mail*, 10 February 2018, O3, and published online on 9 February at https://www.theglobeandmail.com/opinion/canada-had-it-right-when-it-comes-to-afghanistan/article37917216/.

133 For one of relatively few good analyses of this see Robert Greenhill, "The decline of Canada's influ-

ence in the world – what is to be done for it?", *Policy Options*, 1 February 2005, http://policyoptions.irpp.org/magazines/canada-in-the-world/the-decline-of-canadas-influence-in-the-world-what-is-to-be-done-for-it/. This author disagrees with some of Mr. Greenhill's specific conclusions, but not the overall thrust of his argument.

134 To illustrate, in the late 1950s, Canada contributed 180 fighter aircraft in nine squadrons to NORAD, representing more than 10% of the interceptor force (see NORAD history reports, http://www.northcom.mil/Portals/28/Documents/Supporting%20documents/(U)%201957%20NORAD%20CONAD%20History%20Jul-Dec.pdf), and, concurrently, 300 fighter aircraft in twelve squadrons forward-deployed in Europe to NATO, representing nearly 8% of the NATO day-fighter force (see NATO, *Report by the International Planning Team to the Standing Group on Force Goals for 1953, 1954 and 1955*, http://archives.nato.int/uploads/r/null/1/1/114786/SG_202_ENG_PDP.pdf). Today, Canada still contributes approximately 10% of NORAD's air defence interceptors, but none of NATO's forward-deployed fighter assets except in small numbers for short periods.

135 This problem is very well described for the defence area by Dave Perry, *Putting the 'Armed' Back into the Canadian Armed Forces: Improving Defence Procurement in Canada*, CDA Institute, Vimy Paper No. 21 (January 2015), http://cdainstitute.ca/wp-content/uploads/2012/06/vimy-paper-21.pdf.

136 The author has written more comprehensively on this subject. See Charles Davies, *Standing on Guard? A Benchmark Comparison of Canada's National Security Architecture*, CDA Institute Analysis (November 2016), http://cdainstitute.ca/wp-content/uploads/2016/07/Davies_Analysis_November_2016.pdf.

137 As evidenced by the fact that, unlike other Western democracies, the security-focused cabinet committees – "Canada in the World and Public Security" and "Intelligence and Emergency Management" – have neither a minister with economic responsibilities as a full-time member nor a mandate to consider economic aspects of national security. Ibid. See also, "Cabinet Committee Mandates and Membership" on the prime minister's website, https://pm.gc.ca/eng/cabinet-committee-mandate-and-membership.

138 Manley Panel, 22-29. Also, the author was personally closely involved in only partly successful and late-to-need efforts with central agencies in Ottawa to put in place needed policy solutions that would facilitate better interdepartmental collaboration within the Kandahar Provincial Reconstruction Team in the funding, contracting and oversight of local projects considered crucial to the mission. With the withdrawal of Canada from Kandahar in 2011, the problem was set aside for other priorities.

139 Woychesin and de Graaff, *The Comprehensive Approach to Operations*.

140 The retirement without replacement of the *Oberon* Class submarine fleet in 2000 and more recent loss of its at-sea replenishment capability (belatedly mitigated somewhat with a leased modified commercial vessel) are only the most obvious recent examples.

141 Now finally undergoing a much-overdue and expensive renovation and upgrade.

142 See Kim Richard Nossal, *Charlie Foxtrot: Fixing Defence Procurement in Canada* (Toronto: Dundurn, 2016). Also, Charles Davies, *Take a Long-Term View of National Defence – Part 2: Advice for Members of Canada's 42nd Parliament*, CDA Institute Analysis (November 2015), http://cdainstitute.ca/wp-content/uploads/Davies_Analysis_Part2_November_2015.pdf.

143 Then-U.S. President Barack Obama was not the first to use the expression when he made the comment during his address to the Canadian Parliament on 29 June 2016.

144 To be fair, Budget 2018 does offer an economic strategy of sorts, but its objectives are primarily internal and social in focus. There is no reference to reversing the erosion of Canada's capacity to act in the global community. Canada, Department of Finance, Budget 2018, *Equality and Growth: A Strong Middle Class* (27 February 2018), https://www.budget.gc.ca/2018/docs/plan/budget-2018-en.pdf.

145 To cite only one analysis of this problem, see Eric Lehre, "China and the Indo-Pacific: Defining Canadian Strategy in the Region", in *The Strategic Outlook for Canada 2017*, David McDonough and Charles Davies, eds., CDA Institute, Vimy Paper No. 34 (February 2017), Chapter 5, https://cdainstitute.ca/wp-content/uploads/2016/07/Vimy-Paper-34-Strategic-Outlook-2017.pdf.

L'Institut de la CAD
Cahier Vimy

CDA Institute
Vimy Paper

CONFERENCE OF DEFENCE ASSOCIATIONS INSTITUTE / L'INSTITUT DE LA CONFÉRENCE DES ASSOCIATIONS DE LA DÉFENSE

75 Albert Street, suite 900, Ottawa, Ontario K1P 5E7
Phone / Téléphone: +1 (613) 236 9903

@CDAInstitute | https://cdainstitute.ca