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Beyond COVID-19: Five commentaries on reimagining governance for future crises and resilience

Abstract: Several Canadian and international scholars offer commentaries on the implications of the COVID-19 pandemic for governments and public service institutions, and fruitful directions for public administration research and practice. This second suite of commentaries considers the challenges confronting governments as a result of the COVID-19 pandemic and in the decades to come with an increasingly broad lens: the need to understand and rethink the architecture of the state given recent and future challenges awaiting governments; the need to rethink government-civil society relations and policies to deliver services for increasingly diverse citizens and communities; the need for new repertoires and sensibilities on the part of governments for recognizing, anticipating, and engaging on governance risks despite imperfect expert knowledge and public skepticism; how the COVID-19 crisis has caused us to reconceive international and sub-national borders where new "borders" are being drawn; and the need to anticipate a steady stream of crises similar to the COVID-19 pandemic arising from climate change and related challenges, and develop new national and international governance strategies for fostering population and community resilience.

Sommaire : Plusieurs universitaires canadiens et internationaux ont offert des suggestions sur les implications de la pandémie du COVID-19 pour les gouvernements et les institutions de la fonction publique, ainsi que des orientations futures pour la recherche et la pratique en administration publique. Cette deuxième série de commentaires examine les défis que devront affronter les gouvernements en raison de la pandémie de COVID-19 et dans les décennies à venir, dans une optique large. Cette série souligne le besoin de comprendre et de repenser l'architecture de l'État, de revoir les relations entre le gouvernement et la société civile pour fournir des services à des citoyens et des communautés de plus en plus divers, d'élaborer de nouvelles façons d'identifier et d'anticiper les risques, et de s'engager malgré

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l'imperfection des connaissances d'experts et le scepticisme du public, de repenser les frontières, tout ceci en tenant compte des crises et défis à venir, de façon à promouvoir la résilience de la population et des communautés.

Reinventing public administration for a dangerous century

Alasdair Roberts

In retrospect, the last few years of the twentieth century were a moment of calm before a violent storm. We have spent the first decades of the twenty-first century dealing with a series of extraordinary shocks. The wave of terrorism that included the attacks of September 11, 2001, has been described as the most violent in a century (Rapoport 2004). The global financial crisis of 2007-2008 triggered the most severe economic breakdown since the Great Depression of the 1930s (Stewart 2008). The pandemic of 2020 has been called the greatest challenge that the world has confronted since World War II (Donahue 2020).

This series of shocks has upended conventional wisdom about the role of government. In the 1990s, it was fashionable to say that states were in retreat because of globalization. "Heads of governments," Susan Strange announced in 1996, "have lost the authority over national societies and economies that they used to have" (Strange 1996). Today, we know that reports about the death of states were premature. "The state is here, the state is present," Prime Minister Giuseppe Conte assured Italians as the COVID-19 epidemic spread in March 2020. Like other national leaders, Conte promised that government would take "extraordinary measures" to protect the Italian people (ITV News 2020).

No simple formulas for governing well

We have learned over the last two decades that there is no simple formula for governing well. Many people thought otherwise in the 1990s. At that time, there was stock advice for leaders everywhere: embrace democracy and the rule of law, restrict government, liberate markets and open borders. These policies were promoted as the only sure path toward peace and prosperity (Friedman 1999: 104; Mandelbaum 2002: 4-5).

National leaders spent the next two decades violating this formula in many ways. In moments of crisis, civil rights were suspended, surveillance was intensified, bureaucracies were expanded, borders were closed, and businesses were nationalized, regulated and shuttered. Realism and pragmatism became the order of the day. Leaders emphasized imminent dangers and promised to "do whatever it takes" to protect their countries. The general principles that were propagated in 1990s were bent to protect homeland security, avert economic collapse, and prevent mass death.

In the 1990s, conventional wisdom said that political leaders should limit their discretion so far as possible. The journalist Thomas Friedman even said that leaders should put themselves in a policy "straitjacket" (Friedman 1999: 104). This conventional wisdom was heavily influenced by the German doctrine known as ordoliberalism, which emerged in reaction to the Weimar era and emphasized the dangers of undisciplined state power (Gerber 1994). Leaders were expected to check their authority by making "binding commitments" to simple policy rules such as keeping a balanced budget, delegating power to arm's-length agencies, allowing industries to self-regulate, and pushing citizens to accept "personal responsibility" for their circumstances (Harvey 2005: 23 and 76; Roberts 2010).

However, the 2000s illustrated the limitations of the ordoliberal formula. Leaders could not shirk public accountability, and so in moments of duress they broke out of the straitjacket and recovered plenary authority. Leaders also discovered that there were no simple rules to guide decisions in complex and dangerous circumstances. Every crisis required delicate judgments about the substance, calibration and timing of policy: What exactly should government do, when should it act and how far should it go, and when should measures be reversed?

In fact, our experience of governance since 2000 may not be unusual. If we take a long view of history, shocks and stresses – wars, internal disorders, economic disruptions, epidemics, natural disasters – are commonplace. Leaders are inevitably stuck with the difficult task of steering through the shoals. Moreover, turbulent conditions are likely to continue for the remainder of this century. We can expect further dislocations because of climate change, advances in artificial intelligence and automation, shifts in power among nations, population aging and other demographic transformations. In addition, there is the continued risk of pandemics, financial crises and surges of terrorism.

Focusing on governance strategies in turbulent times

In a recent book, *Strategies for Governing*, I have argued that specialists in public administration should reframe their work to accommodate the realities of

this dangerous century (Roberts 2019). I argue that the mainstream of public administration – the scholarship that is represented in top international journals – spends too much time addressing governance problems of the late twentieth century. The aim at that time was to make government "work better and cost less" in an environment characterized by erratic economic growth and growing resistance to taxes (Gore 1993). Hence the emphasis on downsizing bureaucracies, performance-based controls, alternative modes of service delivery, and reliance on market mechanisms, among other topics.

I also suggest in this book that the study of public administration can be approached at different levels of analysis (See Table 1). The research agenda in the period between the early 1980s and early 2000s was focused intensely at the middle- or meso-level. The emphasis was on innovations in management and program design that would improve efficiency and effectiveness. At the same time, there was less attention within mainstream scholarship to high-level matters of governance – that is, the processes by which national priorities and broad national policies are determined and translated into action. In a sense, the field de-skilled itself. The training of new scholars did not emphasize high-level questions and how these questions could be examined systematically.

In periods of calm, when national priorities are well-established, neglect of the macro-level may not matter very much. We can take the broad arc of national policy for granted and operate within it. By contrast, neglect of the macro-level is highly problematic during periods of turbulence. National priorities and the broad lines of policy are likely to change quickly, with important consequences at the lower levels of administration. If we do not study the macro-level, and understand its dynamics, we are apt to be caught flat-footed – as we have been repeatedly over the last two decades.

We need to complement existing research, which is focused on the middle- and micro-levels of governance, with more research that is focused on

Table 1. *Levels of Analysis in Public Administration*

Macro-level	Study of the governance strategies that are devised by leaders to advance critical national interests and the ways in which these strategies influence the overall architecture of the state
Meso-level	Study of the design, consolidation, administration, and reform of specific institutions–that is, laws, organizations, programs and practices–within the state
Micro-level	Study of the attitudes and behavior of officials within the state apparatus and of people who are subject to their authority

Source: Roberts (2019: 17).

the macro-level. In other words, we should emphasize the realm of grand politics.

I approach this subject in the following way. Every state has a ruling group that is concerned with determining national priorities and the broad policies by which those priorities will be pursued. These two elements – priorities and policies – constitute a strategy for governing. Strategies are executed by building or reforming institutions: laws, organizations, programs and practices. This complex of institutions constitutes the state, but it can also be regarded as an expression of strategy.

Specialists in public administration have an immediate interest in overall strategy and the processes by which it is formulated. High-level strategy dictates the path of administrative reform. People who want to know where administrative reform is headed will naturally want to understand the strategy that is guiding it. At the same, high-level decisions about strategy ought to be influenced by knowledge about what institutions are capable of doing, or might be capable of doing after reform. Consequently, specialists in public administration should be skilled in providing advice to national leaders as strategies are formulated.

Implications for public administration research

How would the scholarly agenda in public administration change if we took the macro-level seriously? We might pay more attention to processes of decision-making at the apex of government. This is the space in which many key strategic choices are made. We want people at the top who are well-qualified and approach their work with the right mentality. Decision-makers must be supported by agencies and processes that improve their ability to anticipate dangers, make plans, and respond intelligently to rapidly evolving events (Weller et al. 1997: Chapter 1; Boston 2014: Part 3; Wu et al. 2018; Fuerth and Ronis 2020). Skill in inter-governmental coordination, especially on non-routine business, is also critical. So too is a capacity for wide-scale executive organization – or "whole of government reform" – to assure that public institutions are properly oriented to major threats, and using the best available technologies (Arnold 1981; Christensen and Laegreid 2007). I do not argue that these topics have been ignored over the last thirty years. But they have fallen out of fashion in mainstream research.

In some ways, Canadian scholars have an advantage with regard to the shaping of a new agenda for public administration. There are lines of research that have persisted in Canada while they have faded in the United States and the handful of other countries that dominate mainstream public administration. J.E. Hodgetts, for example, has been rightly celebrated for his body of work. Hodgetts emphasized the "great tasks" of government and insisted on the need for a "broader understanding of politics" as well as

"deep historical study of the many environmental factors" influencing public administration (Gow et al. 2011: 169, 173 and 184). These are exactly the qualities that should be emphasized today. And of course there is a long tradition in Canadian scholarship of research on high-level decision-making, policy and planning capacity, and intergovernmental coordination (French 1984; Bakvis 2000; Inwood et al. 2011).

This journal recently featured a colloquy on the state of public administration research in Canada (Volume 61, Issue 3) that asked whether the Canadian scholarly community was "punching below its weight . . . on the world stage" (Charbonneau et al. 2018). Canadian research, it was argued, is not cited as much in the mainstream literature as it should be. But this may not be a problem if the mainstream literature is not focused on the range of questions that are likely to be critical in coming decades.

The present crisis presents an opportunity for Canadian scholars to chart a course that is suited to Canadian needs and also provides a model to scholars elsewhere about the reorientation that is needed within the field of public administration. We have an opportunity to build on the historic strengths of Canadian scholarship and advocate for an approach better suited to dangerous times. This approach would combine an appreciation of the challenges of statecraft, sensitivity to a wide range of "environmental factors," a historical sensibility, and a capacity to engage in informed speculation about future states.

Government-civil society relations post-pandemic: a reinvention triptych

Susan D. Phillips

The convergence of the global pandemic and accelerated movement for the racial/Indigenous justice is set to reshape governments' relationships with civil society. How public services are financed and delivered, how governments engage with communities and the nonprofit sector, and how both governments and nonprofits practice meaningful inclusion will need to be radically reformed.

Reinventing service delivery

Think ahead, say, five years. You can't visit grandma in palliative care, send your kids to summer camp, go to the theatre or access many other services that matter to you. The barrier is not a continued requirement for physical distancing, rather that the charities and nonprofits that once provided these services no longer exist due to COVID-19.

The first challenge for public management post-pandemic, then, will be how to recoup lost services valued by citizens. COVID-19 is already having

a devastating effect on Canada's charitable and nonprofit sector, which employs about 10 percent of the workforce (Statistics Canada 2017). With fundraising events cancelled, venues closed, ticket sales lost, other earned-income evaporated, and volunteers forced away, 70 percent of charities are experiencing reduced revenues, on average about a 30 percent decline (Imagine Canada 2020; ONN 2020; Sask Nonprofit 2020). One in five charities, out of 86,000, will likely close or merge (Imagine Canada 2020), negatively affecting a diversity of subsectors including human services, arts and culture, faith, sports, and international aid. The effects are likely to be place-differentiated, with some locales hollowed out of organizations to a greater extent than others, creating "charity deserts" (Mohan 2015) that leave already vulnerable communities even more vulnerable (Black to the Future 2020). COVID-19 has also pulled back the curtain on the gendered nature of the sector and on precarious work that is under-paid, lacking pensions and benefits and unstable due to short-term contracts, which particularly impacts racialized and immigrant women (Thériault and Vaillancourt n.d.; ONN 2018). In addition, the essential, often invisible role played by volunteers (mainly older women) and families in shoring-up under-staffed facilities became apparent as the pandemic took its toll on long term care homes.

An optimistic, short-term approach for recovery of the nonprofit sector is to extend wage subsidies and other community funding so that there is a "ramp" rather than a "cliff" (Social Ventures Australia and CSI 2020) off the public sector supports, allowing organizations to retain staff and regain stable revenues. The assumption of this "organic" approach to rebuilding is that, with the help of philanthropy and innovative new business models, resilient organizations will survive and, over time, new ones will spring up to replace those that do not make it. This scenario will not be an effective route to restoring publicly valued services and a vibrant nonprofit sector, however. Philanthropy is no substitute for government, and charitable giving and volunteering has been stagnant for years (Lasby and Barr 2018). Although almost $50 billion in assets are held by private foundations in Canada (PFC 2019) – most of it held in perpetuity with a mandatory payout of 3.5 percent annually – this will not suddenly be spent out to cover the $15 billion that is predicted to be lost from the sector due to COVID-19 (Imagine Canada 2020). More than a return to the status quo of 2019 will be required: the "charity model" that has been an integral part of the liberal welfare state over the past fifty years needs to be reinvented.

The charity model relies on a "goodwill" motivation or "passion bonus" to substitute for full compensation of wages and organizational operating costs. With centuries old roots in religion, the charity model was secularized in the Victorian era, absorbed into the creation of the modern welfare state in liberal regimes such as Canada and widely expanded under New Public Management (NPM) beginning in the late 1980s. The contemporary

manifestation, which Canadian public administration initially dubbed "alternative service delivery (ASD)," puts an emphasis in government-nonprofit contracting on state control and accountability for public money (Armstrong 1998). Governments determine the deliverables of contracts, manage competitive bidding processes, set results-based frameworks and impose strict accountability and reporting requirements. These contracts rarely pay the full cost of service provision, however, reflecting a popular view that funders (and donors) should not be responsible for "overhead" or administration costs. For nonprofits, this has fuelled a "starvation cycle" (Hager et al. 2004; Lecy and Searing 2015) – a systematic under-investment in the infrastructure such as technology, training and personnel that supports resilience and innovation. This also makes it very difficult to accumulate reserve funds that could support more than three months of operations (ONN 2020), which is contributing to the quick demise of many charities.

For Canadian governments, the charity model has enabled policy neglect of this sector. While there have been attempts at reform, most with limited success, these have focused quite narrowly on contracting arrangements (e.g. Independent Blue Ribbon Panel on Federal Grant and Contribution Programs 2006) or charity regulation (e.g. Joint Regulatory Table 2003), rather than on the broader policy frameworks and machinery that structure and guide relationships between the state and the sector (Anheier and Toepler 2019). A Special Senate Committee on the Charitable Sector took up some of these broader issues in its 2019 report, offering 42 specific recommendations for strengthening the sector and its relationship with the federal government – recommendations that have yet to be implemented. However, the "rubber hits the road" relationships occur primarily with provincial governments, some of which have demonstrated open hostility to nonprofits, particularly those undertaking policy advocacy, in recent years.

Canadian public administration scholarship has not motivated deeper examination of these policy frameworks and, indeed, has facilitated considerable complacency. Beginning in the 2000s, Canadian scholars embraced the paradigm of "New Public Governance (NPG)" which originated in Europe and emphasizes networked, collaborative governance and the co-creation of policy between governments and nonprofits. Conceptually, NPG has much to offer as a model of cross-sector collaboration. But we have failed to test well empirically its existence in the Canadian context. Indeed, we often repeated the notion that such co-creation existed until we began to believe it, or based our evidence on a few, usually favourable case studies. Thus, we tended to conclude, with some cautions, that "co-governance of policy offers the nonprofit sector unprecedented opportunities to influence policy and craft policy solutions" (Brock 2020: 267).

I hope that I am wrong in my own, unsubstantiated assertion of the limited presence of collaborative governance in Canadian public management.

Perhaps opportunities are unprecedented, but policy co-creation with the nonprofit sector still seems constrained in our country. It is telling, for instance, that the initial federal proposal for wage subsidies for workers displaced by COVID-19 and other supports for employers did not include charities and nonprofits, and it took quick advocacy by sector leaders to get them covered by these programs (Emergency Coalition of Canadian Charities 2020). The fiasco of the agreement (and its subsequent cancellation) with Canada's "celebrity" charity – the We Charity founded and run by the Kielburger brothers – to manage the $543 million Student Service Grant program on the justification that it was the only charity capable of such delivery sadly reflects on how little the federal government understands or has constructive dialogue with the sector.

Community mobilization

As Canadians (for the most part) heeded the call to "stay home" during the early stages of the pandemic, an informal movement of "caremongering" arose – neighbours formed small pods to help neighbours and grassroots groups of mutual and community aid quickly formed (Moscrop 2020). This informal, place-based community mobilization has been counterbalanced by the nation-wide protests and other forms of collective action in support of the international anti-racism movement. What makes the 2020 round of anti-racism mobilization a critical change moment is its broad base of support: while Millennials and Gen Zs have been the primary participants in demonstrations, three-quarters of Canadians support the demonstrations, with such support consistent across the country and across gender, ethnicity and social-economic status (Narrative Research 2020).

The combination of local, self-help and national, systemic-change movements creates new dynamics for public policy and management. A renewal of the importance of place can be anticipated. The effects of COVID-19 have been felt quite differently in different places – between urban and rural, among and within cities – highlighting place-specific economic and social disparities, the importance of leadership by mayors and municipal governments, and the need for policies on opening the economy to be place-sensitive. In pandemic recovery and rebuilding, the exigencies of place will need to be incorporated into public policy and service reconfiguration by all levels of government. In spite of a spatial turn in public policy and in social science scholarship (Logan 2012) in many other countries over the past decade or so, the national and provincial politics of Canada have made differentiation by place quite difficult. And, Canadian scholarship has similarly lagged behind, with few taking up Bradford's (2005) call to take place more seriously in policy and research. The pursuit of more place-based policy, planning and philanthropy, however, needs to avoid an inherent paradox: that with

a greater focus on locale, the risk is diminishing the ability to draw together cross-sector in order to pursue big issues such as sustainable development goals and climate change.

Action on such issues will hinge on meaningful forms of public and community engagement by governments. With heightened collective action, particularly the pressure for fundamental changes to public services such as policing and the revival of attention to climate change post-pandemic, the current practices of "consultation" will be neither legitimate nor adequate to support the kind of systemic changes that are in motion. New processes and mechanisms that engage civil society leaders and citizens in deeper dialogue on complex issues and ways to rebuild the nonprofit sector will need to be developed and tested. Perhaps we will get to NPG after all. We also have an opportunity to build upon the community mobilization of COVID-19 to strengthen the culture of philanthropy and create stronger infrastructure for volunteering, participation and giving.

Diversity, equity and inclusion

The third challenge is not only engaging in more meaningful ways with diverse communities, but ensuring diverse communities are more meaningfully engaged within both governments and civil society organizations. While better practices of diversity, equity and inclusion (DEI) have been on the agenda for years, they are now at the heart of the ability to implement major change.

Accompanied by mandatory reporting on the legislated "equity" categories, the federal and many provincial governments have achieved increased representation of racialized and Indigenous employees, nearing or even surpassing the levels of workforce availability, although with reduced participation in the executive categories (TBS 2020). However, the nonprofit sector lags behind governments in DEI. While data are limited and there is no mandatory reporting on the composition of boards of directors of Canadian charities or their senior management, only an estimated 12 percent of those in leadership roles are from racialized groups, and in a city as diverse as Toronto, only 17.4 percent in 2017 – a slight decrease from 2014 (Cukier 2018).

Inclusion is more than a number, however, but is both a behaviour and an outcome. As Fredette and Bernstein (2019) note, having a critical mass of "minorities" (including youth) on a board not only produces more equitable boardrooms, but it shifts control that is often held in check by the majority, and thus promotes the exercise of collective influence that changes behaviour and can advance change. Meaningful inclusion needs to cultivate leadership pipelines and talent development, strengthen governance and management practices, and provide better reporting on DEI practices (Omidvar 2020). The post-pandemic world will put an onus on nonprofit

leaders and public service executives to be more strategic and risk taking as they adapt to the digital and technological transformation and work-from-home routines. If post-pandemic there is a large scale exit of leaders from the public and nonprofit sectors, the opportunity window to implement a human resource renewal plan and cultivate new leadership in an inclusive manner will be narrow.

Conclusion

"Never waste a good crisis" – the line simultaneously attributed to Machiavelli, Churchill and Saul Alinsky in *Rules for Radicals* – is a fitting mantra for 2020. Canadian public management faces not one, but two historical moments that have created an imperative for change in policies, practices and scholarship. The disastrous effects of COVID-19 on the nonprofit sector require not mere recovery and restoration of the status quo but reinvention of models of service delivery, better means of engagement in policy development, and more effective inclusion and human resource strategies. More place-sensitive approaches supported by better data and data analytics will be essential. The mobilization of grassroots self-help as well as Millennials and Gen Zs demonstrating against racism creates an opportunity to renew a culture of philanthropy, volunteering and activism. Finally, public management scholarship has much work to do in providing better conceptual and empirical analyses of the government-civil society nexus.

COVID-19: governance strategies for managing uncertain risks

Kevin Quigley

Each year, government scientists estimate the health of fish stocks in order to set total allowable catches for the opening of fishing seasons. In reference to the estimate, a scientist once noted to me that counting fish is as easy as counting trees, except the fish are invisible and they move.[1] Infectious diseases like COVID-19 can be described in a similar way. In fact, it's even more challenging because it is a new variant of the disease (WHO, January 21, 2020; Centers for Disease Control and Prevention May 13, 2020) with many unknowns about how the disease spreads, which makes existing data and past experiences only so helpful.

The International Risk Governance Council (IRGC) framework (2008) divides risks into four classes: simple, complex, uncertain, and ambiguous.[2] The classification of risk is "not related to the intrinsic characteristics of hazards or risks themselves but to the state and quality of knowledge available about both hazards and risks" (Renn and Walker 2008: 18). In the risk governance literature, we would classify the risks associated with COVID-19 as

uncertain. Uncertain risks exist where there is "a lack of clear scientific or technical basis for decision making" (Renn and Walker 2008: 18–19). In short, there is an absence of reliable predictive data. While experts may know a lot about infectious diseases, the magnitude and novelty of the social, health and economic disruption caused by COVID-19 constitutes a significant challenge to any knowledge claims. While terrorism and climate change have different consequences and time horizons when compared to pandemics, they are also examples of uncertain risks.

Challenges of uncertainty

Uncertainty challenges experts. Uncertain risks frequently generate surprises or realizations that risk modelling frameworks fail to anticipate or explain. Experts can simply get it wrong. We have seen this in the pandemic: the threat was clearly underestimated in February, and precious time was lost in preparing (Shear et al. April 1, 2020 and Doolittle June 26, 2020); public health officials have also changed their advice from time to time, as they did about whether nor not people should wear masks to limit the spread of the disease (Cheng June 9, 2020) or whether or not it could be spread by the asymptomatic (Tompkins June 9, 2020 and WHO July 9, 2020).

It is also difficult to anticipate how the public will react to uncertain risks. The psychology of risk literature identifies several biases in people's ability to draw inferences in the face of uncertainty. People are particularly anxious about unknown and high dread risks (Craig 2005 and Quigley et al. 2017: 12). Unknown risks include those that are unobservable, unknown to those exposed and to science, new and have a delayed effect. High dread risks include those that are understood to be uncontrollable, inequitable in their reach, potentially catastrophic, high risk to the future, not easily reduced, include involuntary exposure and affect people personally. Uncertain risks like pandemics have many of these characteristics. Moreover, our willingness to tolerate risk is influenced by a variety of social factors, including age, gender, income, employment status, ethnicity, lived experiences, (dis)ability, geographic location, worldviews and institutional arrangements (Jaeger et al. 2001; Quigley et al. 2017; and Hood et al. 2001: 9).

Psychologists recommend aligning mental models between experts and laypeople (Morgan et al. 2001). Experts provide information to lay audiences to get them to think of the risk as experts do. This strategy makes sense but has limitations in practice. The experts' messages have to be accessible and include appropriate actions people can take to manage the risk; experts are not always known for such clarity. Different advice from around the world about how to act in the face of COVID-19 and different regulations implemented within different provinces, territories, and states of the same country (e.g. Canada and the United States) serves to confuse, not clarify

(Beech et al. May 3, 2020; Hale et al. May 2020; Neustaeter July 6, 2020; and Cheng June 9, 2020). Also, audiences do not always trust experts. Finally, people also show confirmation bias (Wason 1960), which suggests they seek information to confirm, not to challenge, how they feel about issues.

Other psychological biases may work against public health challenges like pandemics, in particular. The relationship between people's anxiety levels and their willingness to engage in preventive or containment measures is well documented (for examples, see Tausczik et al. 2012; Hilton and Smith 2010; Jones and Salathé 2009). Government recommendations during a pandemic are more likely to be followed by those who perceive the risk of infection to be greater. Unfortunately, the relationship between people's anxiety and the probability of them becoming ill can be weak (Jones and Salathé 2009). From a probability point of view, people often feel anxious about the wrong things. Medical advice may also conflict with personal, cultural, or religious beliefs (e.g. see the Ebola case in 2014–15 as described in Manguvo and Mafuvadze [2015] and Landen [2014]). Finally, public health does not always get credit for the work it does, which can limit people's willingness to follow their advice. The successes of public health initiatives suffer from a dilution of benefit, whereby the perceived benefit is diminished because the public no longer observes the consequences of the disease (Poland and Jacobson 2000 and 2001). For example, we frequently learn about the number of people who have COVID-19 or have died as a result of getting COVID-19; we spend less time referring to the number of people who might have contracted the disease had public health not taken such a strong stand.

One of the most common heuristics is *availability*: people tend to believe that an event is more likely to occur when they can imagine or recall it easily (for examples, see Slovic et al. 1982; Folkes 1988; Betsch and Pohl 2002; Tversky and Kahneman 1973; Maldonato and Dell'Orco 2011). The availability heuristic provides important insights into our reaction to COVID-19. Our understanding of pandemics has been shaped by SARS, H1N1 and Ebola, which occurred on a much smaller scale. Because we have never experienced such a large-scale pandemic, we could not imagine it; if we cannot imagine it, it is very difficult to prepare for it. Our failure in imagination, a term once used to describe the US government's failure to anticipate another uncertain risk, 9/11 (The House Permanent Select Committee on Intelligence and the Senate Select Committee on Intelligence 2002), provides insights into the slow start in our response to COVID-19. Now that we have experienced a global lock-down, however, the availability heuristic will shape our response to the second wave. The key will be to avoid overreaction.

Addressing uncertain risks: information, standards, behaviour change

When addressing uncertain risks, the IRGC framework recommends taking a precautionary approach, which is not without controversy. Governments have frequently referred to the use of precaution since the disease started. There are several important questions when it comes to adopting a precautionary stance: Who provides proof that it is warranted? How reliable is the data? Who decides to adopt it? Who is left vulnerable? What constitutes an essential service and is thereby treated differently? Who gains and who pays? How aggressively is the precautionary stance enforced and for how long? The devil is in the detail. Kheifets, Hester, and Banerjee (2001) found considerable variation in how the term *precautionary principle* is used and how the concept is put into practice.

Precautionary approaches are expensive, if not altogether contradictory (Sunstein 2005); COVID-19 has demonstrated clearly what risk analysts think about all the time: there are risks if one acts, just as there are risks if one does not. Focussing narrowly on one risk neglects others. There are no risk-free options, there are only trade-offs. What will the increase in heart disease be because we closed local gyms due to COVID-19? How many kids will get in bike accidents on the road because they are not in supervised summer camps? This tension exposes a particularly problematic calculation when costs and benefits are distributed unequally. Young people seem to be at relatively low risk of serious illness but are paying a high price for job losses (Government of Canada June 10, 2020, "Outbreak Update," and Statistics Canada 2020). There are some analytical tools, such as value of life calculations, but in a popular context they are treated with skepticism and are difficult to implement (Quigley May 5, 2018). In practice we struggle to reconcile these risks.

We need to control the response as best as we can and adapt to changing circumstances as they emerge. Control can be understood according to the three elements of a cybernetic control system – information gathering, standard setting, and behaviour modification (Hood et al. 2001: 23–5). *Information-gathering* in a fluid context is captured by the concept of the knowledge commons. In a paper examining the aftermath of and recovery from the 2010 earthquake in Haiti, Comfort et al. (2011) define the knowledge commons as a comprehensive, interactive, emergent system to support decision-making and organizational learning by communities in complex, changing environments. Comfort and Okada (2013: 66) conclude that an extreme event "requires an information infrastructure to facilitate the search for, and exchange of, timely, valid information." A knowledge-commons provides a powerful way of organizing information (and even a guiding principle) to aid management of extreme events. While the knowledge-commons struggles with

standards, formal leadership, and deep learning, the knowledge-commons engages seriously with adaptive capacity to develop more resilient systems. The knowledge commons conceives of a highly dynamic environment in which little is assumed and much is in flux.

Information gathering alone, however, does not control a system. *Standard setting*, which leads to making people accountable for achieving specific goals, and prompting and monitoring *behaviour change* are also crucial aspects to controlling a system. When we consider establishing standards for an uncertain risk, we adopt a precautionary approach if the outcome is potentially catastrophic and/or irreversible. Our standards should be flexible and allow us to adapt as we learn more about the risk. At the same time, we must protect crucial systems whose failure would have a massive and cascading effect. Despite these efforts, we are still left with the question of how much risk we can tolerate, and what degree of failure we are willing to accept, and who pays. To a degree this is a moving target, and context sensitive. In this case, standards are driven by the nature of the risk itself as well as by what we can afford, what technology and the law will allow and what civil society thinks is right. They can also be subject to lobbying by powerful interests and narrowly scrutinized and amplified by a pervasive media in search of conflict and controversy. There has been considerable progress made in the ethics literature including in pandemic response following SARS and H1N1, which is important in a case like COVID-19 (University of Toronto Joint Centre for Bioethics November 2005; WHO 2007; WHO 2016; Alliance for Health Policy and Systems Research with the Global Health Ethics Unit (WHO) 2019; International Bioethics Committee and World Commission on the Ethics of Scientific Knowledge and Technology 2020; Government of Canada June 2020).

Motivating behaviour change: investing in foresight and fostering trust

People responsible for critical systems need foresight in order to motivate the appropriate behaviour change. Adaptive capacity is not the strong card of routine-oriented bureaucracies. The intuitive logics school of scenario planning is the most commonly used method for scenario planning (Bradfield et al. 2005), and as a tool can be applied with good effect during times of high uncertainty. Van der Heijden underpins his scenario exercises with strategic conversations and Kolb's learning loop (Van der Heijden 2005; Kolb et al. 1991). He notes, "This is the purpose of scenario work. Think in terms of asking the why question, trying to find the causes of the causes of the causes" (Van der Heijden 1996). Van der Heijden encourages us to examine the underlying causes that created vulnerability in the first place. In this sense, an uncertain risk like COVID-19 is not the cause of the problem;

it has merely exposed underlying problems, as with the instability of the gig economy (Jeon et al. 2019), homelessness (Perri et al. June 2020), and an over-burdened healthcare and long-term care system (Butler 2020 and Royal Society of Canada June 2020), for example.

Van Asselt et al. (2010) represent an advance on Van der Heijden (1996), extending the intuitive method of scenario planning into the policy realm. The scenarios exercises focus on identifying the factors that drive the organization and different plausible futures to which the organization must react. The scenario sessions explore critical uncertainties and the underlying causes of organizational vulnerabilities. Ultimately, scenario planning can identify criteria by which to evaluate new programs, policies and initiatives in light of these uncertain futures. These exercises can generate more adaptive capacity in public bureaucracies and distinguish between those things which public agents can control and those they cannot.

All of these initiatives must be underpinned by trust in public institutions and particularly trust in public health agencies. Compared to other Western countries, Canadians generally trust their government and their doctors (Quigley et al. 2017: 182 and 78); in the middle of a pandemic, this is an advantage. Nevertheless, governments and public health officials will have to continue to earn Canadians' trust. Peters, Covello, and McCallum (1997) identified three dimensions that people tend to look for in others to develop trust: knowledge and expertise; care and concern; and openness and honesty (cited in White and Eiser 2006). These concepts can be applied equally at the organizational level (Gillespie and Dietz 2009). The concept of open communication, in particular, appears repeatedly in research on developing organizational trust (Clark and Payne 1997) and encompasses free data sharing, inclusive decision-making, and collaborative work (Firth-Cozens 2004; Jeffcott et al. 2006). Absent trust, earned through openness, knowledge and concern, uncertain risks can generate volatile responses, which jeopardize the success of any plan.

Conclusion: implications for public administration research

What has been particularly revealing about the COVID-19 experience to date is how much the risk governance literature has to offer to policy design and public administration practice and research. In this sense, we do not need a wholesale change in the direction of the risk literature, but certain aspects will undoubtedly be reviewed in light of COVID-19 and advances will be made. The challenge, though, will be to better incorporate risk-governance concepts and findings from empirical studies into public administration scholarship in Canada for the host of emerging, anticipated, and unanticipated crises on the horizon.

Creating more adaptive capacity in the bureaucracy, and anticipating the unanticipated, collective risk tolerance, ethics and our application of the precautionary principle are not new subjects but the challenges with them persist and the take-up of them in public-administration research lags. Rather than focus only on ex-post reviews of what occurred after crises, more scholarship should focus on design, with estimates of the extent to which desired outcomes can be achieved in different scenarios and, this, by definition, requires becoming more familiar with and using a variety of modelling and foresight approaches (Jones 2017). All of this requires further investigation by the academic community.

International boundaries, borders, and the Coronavirus pandemic: a new era in border policy and public administration research?

Emmanuel Brunet-Jailly

This commentary explores what the biological, immunological borders of the Coronavirus mean to the borders of human communities in a context where immunization is not yet available. Are international boundary lines likely to be the best places to implement (health) policies to control the spread of COVID-19, and why or why not? The challenge posed to border policies by COVID-19 requires novel thinking about borders and about the reach of health policies to control and eradicate the coronavirus.

Below I explore various options and debates regarding a number of policy alternatives and suggest focusing on counter-intuitive policy approaches that underscore the limited effectiveness of an international boundary line lockdown, as a *front*, to stop the virus spread. Four public governance approaches are discussed and analyzed – do-nothing, virus mitigation, virus suppression, and virus elimination – which leave us with new conceptions of borders. With appropriate policy alignments constituencies may be able to implement biological boundaries within or across countries, cities or other regions of the world that are virus free. This short commentary is a plea for more research from public administration scholars in this area of border studies and, in particular, to study the types of governance and collaborations necessary to "border Coronavirus out" of Canadian communities.

Different approaches and thinking differently about COVID-19

Our context is particularly worrisome: (1) the virus reproduces at a ratio of 1 for 3, suggesting a doubling of infected individuals every five days because

(2) asymptomatic cases can shed COVID-19 up to 21 days (1 in 10,000 cases) while 90% of cases have symptoms within 3-5 days. Research in contact-tracing has confirmed that 50% of cases are infected by asymptomatic cases (Nishiura et al. 2020), which testing (both serological or nasal swab) struggles catching (Gudbjartsson et al. 2020). Countries have struggled and adopted very different strategies. Consider three examples:

- At the end of March 2020, Finland's capital region was closed to the rest of the country. Indeed, because the rest of the country is sparsely populated, hospitals across Finland were protected from the Helsinki population and particularly *asymptomatic* individuals infected with COVID-19. Only police, military officials, medical staff and other authorized individuals could travel across Finland. Social distancing enforcement was the shared burden of policing and of private businesses and public sector organizations – going to the office was forbidden, electronic keys, which allowed both entry/exit, and surveillance, registered all infringements, and fines would be automatically debited from your account. The Finnish governance of the pandemic put the whole country into lockdown and placed the border within the country by isolating communities from each other.
- The Republic of China (Taiwan) government crossed-referenced health and travel databases to identify high-risk individuals and relied on immigration and health services to locate potential at-risk hosts – whether at home, the airport or seaport – to quarantine them systematically (Wang et al. 2020: Republic of China 2019, Kornreich and Jin 2020). The *Taiwan National Health Command Center* (NHCC) was placed under the authority of the *Center for Disease Control* (CDC) and, since 2003 and the SARS epidemic, the *Ministry of Health and Welfare* worked to establish multiple government databases with the *National Health Insurance* and the *Taiwan National Infectious Disease Statistics System* to integrate information systems. By 2017, the Ministry established a plan to increase health inspection capacity in ports and airports, a "smart quarantine network" involving more staff and equipment purchase (infrared temperature), and also launched an information campaign targeting all Taiwanese travelling abroad (two million live and work in mainland China). All policy interventions were whole-government actions under the coordination of the *Central Epidemic Command Center* (CECC) headed by the Minister of Health and Welfare. CECC intervened in intelligence, operation and logistics (TCECCEP 2020).
- In British Columbia, which had relatively successful early interventions and encouragement to wall our bodies from the coronavirus and opted for "buy-in" from the public rather than a compliance approach. We have been told to wash our hands with soap or antiseptics (British Columbia 2020, BCCSA 2020a; 2020b), keep your distance, wear a mask to protect others;

health care workers wear protective gear (suit, mask, shield, gloves). The mantra of "*be kind, be calm and be safe*" (McElroy 2020: 68) has accompanied the expansion of virtual health care, and when safe, in-person care, for instance, for coronavirus patients (Doctors of BC 2020). Complementing this was Canada's closure of its southern border, by agreement with the United States.

Although not first apparent, each example points to different underlying strategies for drawing borders around countries, communities, individuals, and the virus.

Even before COVID-19, the literature on the geopolitical governance of borders was shifting from strict territorial bordering to regional and possibly global functional borders of connectivity, reflecting trends in global connectivity and global trade. Recent research submits that "borderscaping" (Brambilla 2015) is a prime concept to understand cooperation across borders and borderlands while the "vacillation" (Balibar 1998) of border policies is also debated along with suggestions that borders are in "motion" (Konrad 2015) or "mobile" (Amilhat Szary and Girault 2015), or again that because of timescale-transformations borders' bend (Chen 2005). Certainly, Ōmae's idea of the borderless world (Ōmae 1990) has lost prominence. In the era of COVID-19, when looking back just a few weeks, too few research projects appear from public policy research about international boundaries and pandemics (Bell 2004; Brownstein et al. 2006; Viboud et al. 2006; Colizza et al. 2007; Cooper et al. 2006; Grais et al. 2003; McLeod et al. 2008; Mensua et al. 2019; Neumann et al. 2010). The few studies published in medical and science journals underscore the alarming "*very few carefully planned strategies at the border*" and extremely few are done in or about Canada (Hanvoravongchai et al. 2010; Neis et al. 2020; Henry 2019; Harvey et al. 2014: Khan et al. 2013).

Few border gates at airports, seaports or land crossings have ever been equipped to stop viruses. Traditionally, border gates, airports and seaports are sites of control of goods and migration. They require specialized bureaucracies: the custom and immigration services. The ancestral idea of a border-wall at boundary line, such as the XIV century Toulon Wall, did not stop the plague successfully (D'Allemand 1760). Undeniably, the annual flu virus does not stop at any boundary lines. Indeed, viruses cross a biological border between two or multiple hosts, and COVID-19, a 1/10.000 of a millimeter virus, only needs to attach itself to a human cell, to penetrate it like a *Trojan horse*, to then multiply and invade the host, and then sheds, when the host coughs and speaks (for example); international boundary lines are not equipped to implement a biological border to COVID-19.

In other words, without medication or vaccination, we need to *think differently* about the governance of our border policies so we can stop COVID-19 from invading human hosts one by one. How should we proceed to bring an

entire population so called "T-cell" to learn to fight this new virus without the horrendous cost of life, of one to six percent death currently recorded across the world (Johns Hopkins University 2020) but also the extreme strain on national public and private health systems? Reaching mass immunity is not that simple and bears alarming costs (Brunet-Jailly 2020). The question then remains how do we break the chain of virus reproduction now that immunologists are telling us the virus is *deadly and spreads from people without symptoms*? And, if we insist on using international boundaries to stop a virus, we need to rethink *what state services stand guard at border gates*. It should not be the military or customs or immigration officers unless they develop medical-corps. State agencies thus need to further expand to provide specialized services at the border crossing.

Four options for "bordering" COVID-19

One hundred and fifty days into the pandemic, while billions of dollars and thousands of researchers are testing various vaccinations, there are four policy and governance options that have emerged around the world that use various algorithms to benchmark their response against the virus. All four have closed international boundaries at some point during the pandemic fight. The first one is do little and wait for *crowd-immunity* to develop. The second approach is *mitigating* the spread, the third approach is *suppressing* the spread and fourth is *eliminating* the virus. As discussed below, only *eliminating* the virus may justify using international boundary lines as the frontiers to stop virus spread unless safe bubbles are established between states or other constituencies aligning their policies.

The *crowd-immunity (or "do-nothing") strategy* requires the least amount of resources invested in fighting the virus. It does not require the closing of the international boundary line; borders can remain open as well as trade flows; and traditional services do not need to adapt their modes of operation. Crowd immunity (D'Souza and Dowdy 2020) was discussed in most Scandinavian countries from February 2020 and in the United States, and adopted by Sweden. However, people die at a relatively higher rate than with other governance options, and life itself has a cost as well (Brown 2020, Brunet-Jailly 2020). A recent study shows that 50-60% of the "most vulnerable might lose their lives in order to attain a 70% total immunized population" (Mukherjee and Biman 2020). In such an option the virus spread is left unattended and may even be encouraged so that natural selection progressively leads to crowd immunity once enough individuals are immune (i.e. the virus hosts have enough t-cells to fight and kill the virus rather than spread it further).

The *mitigating strategy* aims to flatten the curve to slow the transmission rate and number of deaths and to protect an overflow at medical health facilities – these are the two goals set out up-front in British Columbia (Henry

2019) and Canada. It does aim at reducing the overall number of cases primarily by spreading the number of cases over time, and concurrently, at reducing the number of deaths because medical institutions are able to cope. To flatten the curve, government uses information to implement six goals: *hand hygiene, respiratory etiquette, cleaning commonly used surfaces, use of surgical masks, voluntary self-isolation and voluntary home quarantine* (Henry 2019). Progressively, this approach implements "social distancing," imposing tighter requirements over time; hence closing schools, forbidding large gatherings, forbidding travelling for non-essential services such as closing cities or urban regions to protect country-side medical facilities. Ultimately, the extreme decision of a full lock-down (e.g. India in April 2020) may lead to sealing off a country from the rest of the world. BC kept a long list of essential services open; but social distancing impacted some economic sectors much more than others: tourism for instance. This option may keep international boundaries open to certain traffic and trading activities.

Importantly, in such an option, all borders are *around human communities*, and they are not breaking the virus transmission chain between hosts. Indeed, one issue with lockdowns and social distancing is social discipline and the very real respect of social distancing – because that distance is the biological border between the death and reproduction of COVID-19. In case social distancing is difficult or impossible, for instance, in overcrowded dwellings, clusters of viruses spread can thrive; as in Singapore and India, for instance (Palma 2020: Schultz and Sameer 2020), or in and around meat plants (Reuben 2020). The success of social distancing strategies requires more than the will and discipline of individuals: it also requires a redesign of overcrowded facilities. Vigorous social distancing can be a successful strategy if it creates a border between a virus host and potential hosts. Most importantly, *mitigating* and *social distancing* cannot be implemented easily at an international boundary line without other policy instruments and prescriptions because they do not single-out virus hosts. The border is around each potential host and all members of the same community or constituency.

A *coronavirus suppression strategy* requires going beyond mitigation to track the reproduction chain between a virus host and a potential host. It requires a steady imposition of *quarantine* to (1) all infected and (2) all likely infected but asymptomatic individuals. It prioritizes protecting a community against a potential individually infected host. Each host must be interviewed to track down the origin of the virus across any possible community lines of transmission. A biological boundary line is drawn around each possible host. Tracking down the origin of a virus host, and virus spread, is not dissimilar from traditional police-inspection repertoires when symptomatic individuals are asked about previous social interactions and likely origin of the virus. Infection tracking devices/apps may be used across international

boundary lines. The European Union, for instance, has agreed to share all national COVID-19 tracking information across all 28-member states (European Commission 2020). Specific national apps are approved and invited to join in the single *European Federation Gateway Service* that allows the transmission of the diagnostic keys of infected EU citizens every two hours (eHealth Network 2020). However, if there is less than 60% take-up within a given population, the app approach is ineffective (Ferretti et al. 2020). For the European Union this means that up to 300 million people should have such apps on their tablets or cellphones. Clearly, such an option needs clear privacy protection law standards. More research and discussion are necessary (Lyon 2020), but Google and Apple have partnered to make their platforms and cellphone app friendly to contact-tracing technologies (Apple Newsroom 2020) (as of May 2020 the Bluetooth interoperability functionality was updated on my phone).

Once a community has engaged with the suppression strategy, it requires additional policy tools: (1) widespread community testing and (2) strict contact-tracing and quarantining. Indeed, elimination requires going full-out with contact-tracing, quarantining and testing; undeniably, the lockdown, social distancing, or do-nothing options are not used at all in such a strategy. Each infected host is "bordered-out" of the community thanks to a biological border: isolation (i.e. quarantining) such as in Korea (Dudden and Marks 2020). It brings the border to the virus and each individual host and breaks the chain of transmission. Such strategies have been implemented in Taiwan, Singapore and Hong Kong but also in South Korea and New Zealand; all have involved testing, and some form of enforced surveillance thanks to a contact-tracing app, a wrist or ankle bracelet, and quarantine (or hospitalization).

The *elimination strategy* can implement the policy at the border because it uses the crossing of the boundary line as a key way to identify high at-risk individuals. For example, in Taiwan by February 18th, 2020, all hospitals, clinics, pharmacies had the travel histories of their patients and all Taiwanese and foreign residents were monitored via their mobile phones. All those who had travelled were to quarantine for 14 days (Wang et al. 2020: 1342). Taiwan's Ministry of Health and Welfare controls this specific aspect of the border crossing. In Taiwan, the border is both physical (entering or exiting the international boundary), electronic (mobile phone app), and biological (quarantine).

Implications for further research

The study of borders and borderlands, anchored by a number of international journals and numerous research collaborations, has attracted an ever-widening interdisciplinary group of scholars from around the world, but

public administration scholars have been under-represented in these networks. As this short commentary demonstrates, there is considerable scope for leading-edge research on the governance, policies, and administrative arrangements associated with borders. Considering the COVID-19 pandemic, here are some topics which could benefit from governance and public administration researchers:

1. Which COVID-19 governance strategies were adopted by different countries or subnational jurisdictions? Which were most successful in the short, medium and longer terms? Does the assignment of lead administrative responsibility for responding to the crisis matter, especially with respect to coordinating effort and working across boundaries?
2. Looking to the medium and longer term, what will be the impact of COVID-19 on the panoply of border-related policies (e.g. custom and trade, immigration, work and tourism visas, security and intelligence, health, support for international institutions, international development)?
3. Looking beyond the immediate crisis, and taking a machinery-of-government perspective, does this augur well for new ways to configure ministerial and administrative oversight for "border governance and administration" at the national level? What are the implications for furthering federal-provincial-territorial cooperation? What about the need to work with business and nonprofit actors in different sectors?
4. Has digitalization and working across borders received additional "oxygen" from the COVID-19 experience to date? Will this cause us to further rethink the governance of borders from a policy and administrative perspective?

My hope is that this commentary will stimulate collaboration with public administration scholars on borders and borderlands within and across Canada and with border scholars worldwide.

More crises to come: managing risk and fostering resilience with the COVID-19 pandemic recovery

Astrid Brousselle, Chris Kennedy, and Emmanuel Brunet-Jailly

Our response to the current COVID-19 health crisis is unprecedented. We have never confined the population at a global scale nor ratcheted back the economy as we did this year, for protecting people from a sanitary risk. This situation demonstrates the value health has for our societies and the immense agency of our governments. This response also carries the risk of transforming this sanitary crisis into an economic and a social one, as we

already can see the impacts of the pandemic and economic slowdown on social inequities.

Unfortunately, COVID-19 will only be one of the many forthcoming crises of this century. The degradation of the environment is now a major threat to human health and survival (Haines et al. 2014; Neira 2014; Watts et al. 2018). Climate change, only one aspect of the ecological crisis, is considered the most important threat to humanity (Watts et al. 2015). Our populations prepare to live with natural phenomena such as floods, fires, pest infestations, but also with increased risks to health, livelihoods, biodiversity, and with mass migrations and increased social fractures (Brousselle and McDavid 2020; IPCC 2019, 2018; Watts et al. 2015).

The way our governments will lead us out of the COVID-19 crisis will be critical in preparing us for the next series of crises. What would be the key elements of recovery plans that would help our society reduce the risks from upcoming crises? Can we rethink about our economy and society in a way that will reduce forthcoming risks? These questions call us to define and understand risk, which we will do in the first section of this article. We then articulate how the risk can be reduced, offering avenues for planning post-COVID-19. How we pull together in recovering from the current crisis will be crucial to strengthening our ability to respond to as well as protect ourselves from future crises.

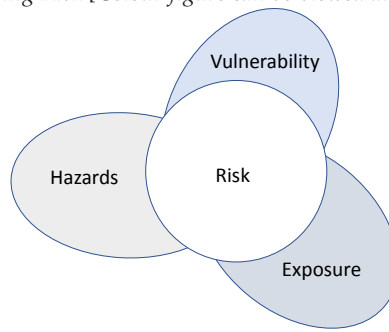
Defining and reducing risk

What made our governments take such drastic measures was the health risk COVID-19 constitutes. Health is a right and primary determinant of society's capacity to engage in activities. It requires careful consideration because it potentially has implications for different sectors of society. Risk to health is at the conjunction of three things: hazards, exposure, and vulnerability (see Figure 1) (Whitmee et al. 2015).

Without a hazard, there is no risk; however, the existence of a hazard does not necessarily mean there is risk. For example, an earthquake in Mexico does not create a risk for people living in other regions of the world. To be at risk requires a hazard and exposure to it. In turn, hazard and exposure together are not sufficient to create risk: an individual, community or population must also have *vulnerability* when exposed to a hazard. For example, each year new colds (the hazard) circulate in communities. Many people will get sick (exposure), but they will not die because they are not vulnerable to this disease. This trilogy of risk elements can also apply to natural events such as earthquakes, floods, heat waves, zoonoses, loss of biodiversity, pollution, and climate change, etc.

To reduce risk, we need to eliminate at least one of the three dimensions. *Mitigation* seeks to reduce hazards, but not all can be eliminated. With climate

Figure 1. *Understanding Risk [Colour figure can be viewed at wileyonlinelibrary.com]*



change, for example, mitigation actions involve reducing greenhouse gas emissions globally to reduce global warming, or its pace. With environmental threats, we have the capacity to act by taking action to reduce pollution in air, soil, and water by protecting biodiversity and managing water and land differently (Brousselle and McDavid n.d.). *Adaptation* measures seek to reduce exposure, contingent on the nature of hazards. These include building dikes to prevent flooding impacts on coastal neighborhoods, staying inside houses during heatwaves, physical distancing, and washing hands during the COVID-19 pandemic. Geographic location, ways of living, history, socio-economic conditions create conditions that will decrease or increase the *vulnerability* of certain groups in populations, which has been defined as "the degree to which a system, or part of a system, may react adversely during the occurrence of a hazardous event" (Proag 2014: 370). *Resilience* is the capacity to resist and the ability to absorb and recover from a disruptive event (Proag 2014). Often, vulnerability and resilience are presented in opposition. We will not address how to reduce individual vulnerability here – a topic in itself – but we will present two key factors to reduce *collective vulnerability*: population and community resilience.

Scientific evidence suggests that more resilient populations and communities will experience the effects of crises less severely and recover more quickly; however, the determinants of resilience differ across levels of analysis. *Population resilience* involves reducing the inequalities to protect health at the population level. In times of economic crises, countries with larger investments in health and social security systems see fewer premature deaths, mental health problems, cardiovascular complications, or infectious diseases (Karanikolos et al. 2013; Stuckler et al. 2009; Stuckler and Basu 2013). In contrast, countries which choose to reduce public spending in the health sector, employment programs, or other redistributive measures, experience worse population health outcomes in times of economic crisis (Karanikolos et al. 2013; Stuckler et al. 2009; Stuckler and Basu 2013). This work confirms existing scientific knowledge showing that investing in redistributive programs

creates a protective social security web that positively affects population health during difficult times. Aiming to increase the resilience of the population necessarily involves reinvesting in measures that will reduce social inequalities, which can be done "by investing in public health and healthcare, education, early childhood programs, income security and social protection, improving living conditions such as housing, implementing policies that support building social and human capital, and bettering employment and working conditions" (WHO 2019; Brousselle and McDavid n.d.).

At the community level, vulnerability does not specifically speak to people, but to the way our communities are organized. The recent health crisis has revealed that, with years of international trade with countries, many communities have delocalized their production capacity, and that, when urgently requiring products, countries were highly dependent on other nations' production. *Community resilience* speaks to the capacity to sustain needs of the communities in times of crisis and of thinking of critical sectors such as food, water, energy, and production capacity, on which we will rely more heavily in times of crisis. Communities and cities have a metabolism, just like living things (Kennedy et al. 2007; Bristow and Kennedy 2013). They consume resources such as food, energy, water, nutrients, and they produce waste such as garbage, pollution, toxic materials, etc. Building resilient communities means protecting their living conditions and prosperity, which means investing in key sectors – particularly in household- and community-scale renewable energy generation and storage – necessary to address climate change and ensure greater community resilience to major power outages and other shocks. Agriculture must also be reconsidered so that it is more diversified, uses the least amount of pesticides and chemical fertilizers, and more closely connects production to consumption. Increasing community resilience will also involve investing in public and active transport, supporting local businesses, and encouraging industrial sectors that are more culturally responsive, more equitable and have sustainable environmental management practices.

Reorienting economies and increasing resilience

At the time of writing (summer 2020), the COVID-19 crisis is slowing down in Canada and yet, in other countries, such as the US and Brazil, cases are increasing dramatically. The World Health Organization warns that a second phase may happen in the fall. Our governments, after implementing emergency measures, are exploring scenarios for a recovery plan and a relaunch of the economy. Considering that this crisis is taking place in a larger context of numerous and varied crises, many environmental, what would be key to

transform this pandemic into an opportunity for better preparation for the crises to come?

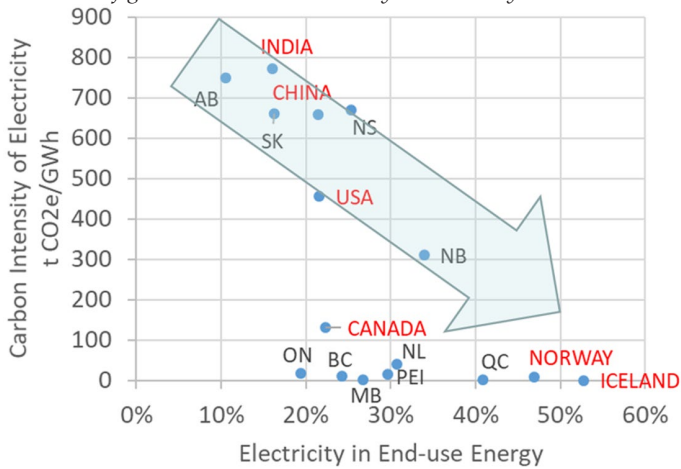
To restart and reorient economic activity, it will be important to consider mitigation and adaptation actions that would reduce identified upcoming hazards and build community resilience, as well as frame these actions in order to maximize redistributive measures. Climate change and its many related events (floods, droughts, fires, heatwaves), social consequences (migration, violent conflicts, loss of habitation, poverty), as well as pollution, are probably the most pressing challenges to address (World Health Organization 2018; Zhang et al. 2017; Watts et al. 2015).

Replacing fossil fuels with electricity from zero-carbon sources is critical for reducing greenhouse gas emissions (IPCC 2014; IEA 2014; Kennedy et al. 2018). The highest priority is investment in community-scale electricity generation, from roof-top photovoltaics with battery storage, for example. Most Canadian provinces generate low-carbon electricity (measured by carbon intensity of electricity supply – see Figure 2). However, with the possible exception of Quebec, provinces have a relatively low use of electricity in end-use energy. Most provinces will need to at least double their use of electricity to move to low-carbon economies with wide-scale use of electric vehicles and building heating using electric heat pumps. Additional electricity will necessarily come from large-scale generation (e.g. hydro-power); however, some community-scale electricity generation will be crucial for maintaining resilient communities.

The challenge with wide-scale electrification of our economies is that it reduces the diversity of energy sources, making our communities more vulnerable to shocks. We cannot entirely rely on big power lines carrying electricity from distant sources – they are vulnerable to windstorms, fire storms, ice storms, and other increasingly common shocks. Generating electricity from the roofs of homes, schools, and other buildings in our communities – and providing neighborhood-scale power storage – will be essential for mitigation and adaptation to climate change. This will entail rethinking business models for utilities (Kennedy et al. 2017) and potentially changing the jurisdictional responsibility for building power generation and storage at scale (Kennedy and Pape-Salmon 2020).

Simultaneously strengthening community and population resilience implies analyzing social impacts and designing the transition to electrification to create local employment opportunities and reduce social inequities. Switching our economy to implement a resilient electric-oriented economy is one example of the many programs and policies that could be recovery measures arising from the COVID-19 crisis, while increasing our resilience for upcoming ones. For example, there are many opportunities to reinvest in the essential functions of cities to encourage the local economy, minimize the environmental impact, reduce the production of greenhouse gases, preserve

Figure 2. *Progress of Canadian Provinces towards Low-Carbon Electrification. [Colour figure can be viewed at wileyonlinelibrary.com]*



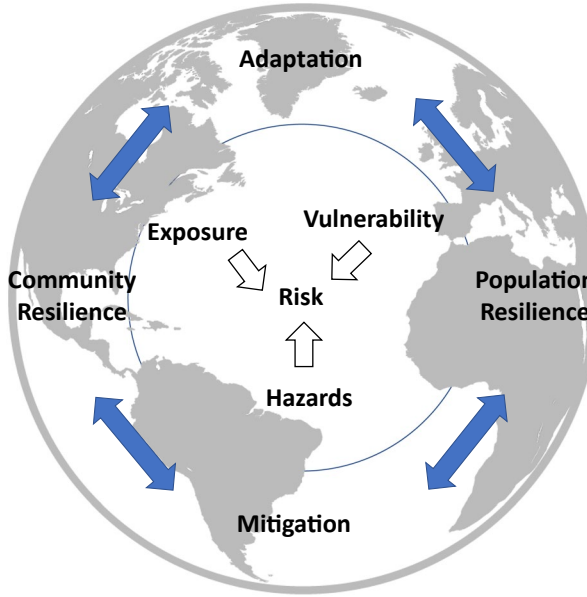
Data for Canada and its provinces is for 2017 from Statistics Canada (2019) and Environment and Climate Change Canada (2019). International data is for 2015 from IEA (2017) and IEA statistics https://www.iea.org/data-and-statistics, accessed 1 Jan 2020. (Note carbon intensity of electricity production is reported; PEI receives much of its electricity supply from New Brunswick, which is not reflected in the data; tCO_2e /GWH is tonnes of carbon dioxide equivalent greenhouse gas emissions per Gigawatt-hour of electricity production.)

carbon sinks, protect biodiversity, and reduce pollution in all its forms (see Figure 3).

Addressing such challenges suggests rethinking our governance system for the longer term with the depletion of the environment and intergenerational equity in mind. Stiglitz, Sen and Fitoussi (2009) suggest different measures for switching from a growth-based economy to a well-being economy.[3] In Canada, 80% of the population lives in cities, which suggests that local and regional levels of action will be critical for redesigning our economic sectors and society: coordination and support from other levels of government will be central for furthering effective and efficient interventions that benefit from economies-of-scale.

Twenty-first century governance and recovery strategies should take into account various environmental threats to human life, where they are generated, and then experienced. As the risks are global and getting realized in different locations than to where the production of contributing factors to these risks occurs, countries may feel less committed to respecting international agreements. As the prisoner dilemma predicts, countries and their populations may well fall in the worst-case situation, if supranational organizations are not enforcing regulations to benefit humanity. This suggests

Figure 3. *Keys to Reducing Risk of Forthcoming Crises [Colour figure can be viewed at wileyonlinelibrary.com]*



that not only should public administration scholars explore new governance architectures for states, but also start rethinking geopolitical and international institutions to address the "one-planet" challenge.

With this in mind, we present two options, which require inventive thinking and policy-research. Option 1 requires our world-of-states to move into a *post-Westphalian international public law era*. New natural and ecological rule systems develop across multiple regional, pan-regional, and possibly continental levels, whereby public and private courts rely on new ecological principles (Greene 2020; Schmader 2017). This option would be informed by bottom-up local, regional national, bilateral, and transnational ecological principles, progressively weaving across the world, and understood, debated, and researched as a new international policy and governance regime.

Option 2 would give *functional rights* to specific planetary boundaries and legal personhood to natural objects. Such functional global rights would empower the natural world, maritime, territorial, fauna and flora in the spirit of Stone (1972), but also the seas and oceans, the air and water, and ultimately, planetary boundaries (Rockstrom et al., 2009: Steffen 2015). The very chemical components that allow life on earth (e.g. water temperature, water acidity, air nitrogen and phosphorus content) have a global reach. These rights would not be based on the Westphalian principle of the modern state, but on a new global legal order, similar to the contemporary global *lex mercatoria* of

free trade regimes or the *lex electronica* (the role of Internet Corporation for Assigned Names and Numbers as the operator of internet and World Wide Web). This would suggest the appearance of a new transnational legal order as understood by Jessup (1956), i.e. a legal regime interconnecting with other legal orders of states, global markets, the World Wide Web, which exclusively focuses on protecting ecological legal objects.

Conclusion

This century will be a turning point for the future of humanity. The status quo is not acceptable considering the risk for human health and survival, created by our current way of organizing our societies. COVID-19 has created the political space for allowing us to imagine our society differently. Solutions exist for addressing our environmental and health challenges, and this crisis has shown that our governments can reduce health risks, protect vulnerable communities and populations, and ensure that our societies thrive.

For political leaders and public administration practitioners, this agenda requires much more than incremental changes. Seriously addressing current and forthcoming risks implies reconfiguring the responsibilities of different levels of governments and how they intersect and coordinate – essentially rethinking the architecture of the state, especially the governance of electrical utilities. This should be informed by a huge program of forward-looking research that will consider new models for designing and implementing new policy and regulatory mixes within and across governments and sectors to further environmental and social sustainability, along with a rethinking of international policy regimes and legal systems, and evaluation systems to orient and gauge progress.

Notes

1 Originally attributed to fisheries scientist John Shepherd.
2 In 2015, the IRGC noted emerging risks. For our purposes, the 2008 reference to uncertainty is sufficient.
3 Among other things, the Stiglitz, Sen and Fitoussi (2009) report underlines the importance of taking stock and systematically assessing the many environmentally sustainable dimensions, informing the necessary conditions for human well-being, switching away from GDP measurement to include measures that would better assess well-being and quality of life, and increasing social transfers and distributive measures to reduce inequities.

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