Spring 2016

Reports of the Commissioner of the Environment and Sustainable Development

The Commissioner's Perspective

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Auditor General of Canada
Vérificateur général du Canada

To the Honourable Speaker of the House of Commons:

I have the honour to transmit herewith these 2016 Spring reports to the House of Commons, which are to be laid before the House in accordance with the provisions of subsection 7(5) of the *Auditor General Act*.

Yours sincerely,

Michael Ferguson, CPA, CA
FCA (New Brunswick)

OTTAWA, 31 May 2016

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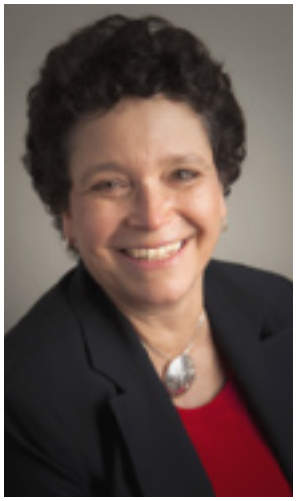

Julie Gelfand
Commissioner of the Environment
and Sustainable Development

Planning tomorrow's infrastructure today

At a time when the federal government has announced substantial investments in infrastructure…

At a time when scientists are predicting that extreme weather events, with impacts that include floods, droughts, and forest fires, will become more frequent and intense, putting an aging and weakened infrastructure to an ever more difficult test… the time is ripe to consider the findings of the audits presented in these reports. They could not come at a better time.

When planning infrastructure today, it is critical to think beyond the here and now to consider what the country will look like in 2040, in 2050, and beyond. Canada must build resilient buildings, roads, bridges, water and sewage facilities, and transportation networks so that we can move around, work, keep the economy going, and live in vibrant and healthy communities. And this infrastructure must be built to also meet the needs of future generations. When resiliency is built into infrastructure, it is also built into communities as they are then better equipped to recover more quickly when disasters strike.

The need for resilient infrastructure and the sustainability of cities is also recognized in the United Nations' 2030 Agenda for Sustainable Development. Canada has endorsed the 2030 agenda and, along with 192 other countries, has agreed to "take the bold and transformative steps which are urgently needed to shift the world on to a sustainable and resilient path."

Under Canada's Constitution, provinces are legally responsible for municipalities. However, the federal government can and does affect the sustainability of municipalities in all regions of the country through its policies, spending programs, regulations (such as energy efficiency or wastewater requirements), management of federal buildings and other property (such as contaminated sites or port lands), and research in areas such as housing design.

I want to touch on some of the more fundamental weaknesses we are presenting in our most recent audit reports. Whether through information, funding, tools, or programs, the federal government's contributions are too often piecemeal, too focused on the short term, and driven by what the government wants to put out instead of what end users need.

Let me use three examples from our recent findings: how infrastructure projects are considered for funding; the lack of incentives to encourage provinces and territories to invest in reducing the impacts of severe weather; and the information and tools the government makes available to decision makers, such as urban planners and engineers, who are tasked with planning and designing resilient infrastructure.

Funding infrastructure projects

On the first point, when it comes to considering infrastructure projects for funding, we found that Infrastructure Canada had not adequately identified or managed environmental risks. The Department expected proposals for major projects to include information on environmental risks, but it did not use this information to analyze the risks of climate change, for example. When environmental risks are not considered, projects may not be designed to minimize environmental effects or withstand the impacts of future weather events. This means that municipalities could be left facing significant unexpected costs down the road.

In addition, current federal funding programs do not actively encourage the use of innovative approaches to mitigate environmental risks. Innovation is critical to addressing the future needs of Canadian municipalities, especially given the pressure on available financial resources and emerging risks such as climate change. Infrastructure Canada informed us that it has not been given a mandate to encourage innovative infrastructure projects through its project selection. This means that there is a risk that "greener" innovative approaches may not replace older technologies.

Furthermore, when looking at infrastructure projects funded by Infrastructure Canada, we found that the Department did not have final indicators, targets, or timelines to measure environmental performance. In particular, the Department did not assess to what extent money spent on projects under the Gas Tax Fund had produced, as intended, cleaner air, cleaner water, and reduced greenhouse gas emissions. By contrast, the much smaller Green Municipal Fund, which is managed by the Federation of Canadian Municipalities, did track and report the environmental benefits of the projects it funded.

Incentives to invest in mitigation

On the second point, we found that the federal government had not been successful in its efforts to encourage provinces and territories to invest in projects designed to mitigate the impacts of severe weather. This shortcoming is significant because increasing the resiliency of infrastructure to large-scale disasters is a critical measure to managing recovery costs, minimizing the disruption to the safety and security of Canadians, and supporting the continued operation of the economy.

The federal government has put in place four programs to support mitigation projects. Three of them include almost $253 million in available funding to provinces and territories. However, none of these programs is specifically designed to significantly improve the resilience of Canada's infrastructure.

For example, the New Building Canada Fund, which is made up of a number of programs and is administered by Infrastructure Canada, was created in 2014 with a 10-year life span. It is one of the funds available for large-scale infrastructure investments, and we found that 5 percent of approved submissions to date have related to disaster mitigation. Disaster mitigation is 1 of 14 priority areas, along with public transit, highway improvements, and water and sewer upgrades, identified under the Fund to support provinces, territories, and municipalities in making infrastructure improvements. Provinces and territories are responsible for prioritizing the infrastructure projects they put forward for federal funding. The Fund is not designed to encourage provinces and territories to make disaster mitigation a priority.

Information and tools to support mitigation planning

The third point on which the federal government could do much better to support the planning of resilient infrastructure relates to the information and tools the government makes available to decision makers.

We found that some data was incomplete, and some tools were obsolete. The needs of decision makers are not driving the information and tools that the government is providing. For example, engineers rely on tools to predict the probability of extreme rainfall amounts and the duration of storms when planning and designing municipal water infrastructure. Yet the data used to inform these tools has not been consistently produced since 2006.

Similarly, floodplain maps allow municipalities to better plan for future growth in areas of low flood risk, and to build in resilient infrastructure in existing areas of high flood risk. National guidelines for flood hazard assessment and mapping have not been updated since 1996. This has left the provinces and territories to manage and update their own maps, with no federal standards or guidelines, and therefore no consistency between jurisdictions.

Provinces and territories are responsible for establishing building codes within their jurisdictions, and they rely on the National Building Code as a model. Though the development of the National Building Code involved consultations with stakeholders, the Code does not take into consideration future climatic information. This data is important to help ensure that homes and buildings are solid enough to withstand severe weather events. Although some climatic loads have been used in the

development of the 2015 Code, the approach to building design for environmental effects currently in place is based solely on historical data. The National Research Council Canada has not yet incorporated climate change trend values into revisions of the Code, which can directly affect buildings and structures for decades to come.

My final and perhaps most important point is that decision makers do not have the information they need to guide the creation of resilient infrastructure for the future. Planning infrastructure for future generations requires having a clear picture of the current state of the infrastructure in the country. It also requires coordination among the various federal departments, and between the federal government and the provinces and territories and the municipalities. As things stand, the picture is incomplete.

Almost half of 123 municipalities that provided input to produce the 2012 Canadian Infrastructure Report Card reported having no data on the condition of their buried infrastructure, such as water distribution pipes. Infrastructure Canada does not conduct its own research on municipal infrastructure funding needs. It has used some Statistics Canada data to estimate the age of Canada's infrastructure, but these estimates do not include the current condition or performance of the infrastructure, nor do they include estimates of future needs. In 2009, the Department had a memorandum of understanding with Statistics Canada to collect that information, but it never gave its final approval. The absence of accurate and up-to-date information on the current state of infrastructure in the country could result in federal funds not being allocated where they can be most effective.

A bright spot is Infrastructure Canada's support for asset management plans through the current Gas Tax Fund agreements. These plans are an approach to managing infrastructure assets in a sustainable manner and are, in our view, key to the systematic integration of climate change and other risks into the infrastructure of the future.

An immediate need to support resiliency

One thing comes through clearly in these findings: for all that the federal government is doing in its role as a provider of information, funding, programs and tools to decision makers, it has not put in place all the elements that are required to ensure that climate change considerations are effectively integrated into infrastructure and disaster mitigation programs, policies, and operations. This makes it difficult for provinces, territories, and municipalities to confidently plan for the future.

The recommendations provided in our reports are broad and far-reaching, ranging from incorporating climate change values into the National Building Code, to the need to ensure that environmental risks—including the risks associated with climate change—are adequately considered and managed.

I am encouraged by the responses we have received from the entities we audited. All have accepted our recommendations and committed to implementing them. It is now up to Parliament to follow through and ensure, through its work in parliamentary committees, that entities act on their commitments. My team and I remain available to support parliamentarians in carrying out this work.

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Main Table of Contents