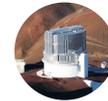


THIS WEEK

EDITORIALS

WORLD VIEW University students should not have to skip meals to pay the rent **p.151**

COSMIC KINDERGARTEN Astronomers find earliest known protocluster **p.152**



US POLICY CRISIS Manipulation of science 'unprecedented' **p.154**

Canada's premier challenge

Justin Trudeau's Liberal Party has struggled to live up to its promises on the environment. Whoever wins the coming election can and must do better.

Canada's Prime Minister Justin Trudeau — the young, liberal political leader — swept into power in 2015 with a decisive victory and an air of new hope. He promised to bring change to a country facing environmental havoc, 'muzzled' government scientists and disappointing science budgets. He made scientific evidence part of his brand, and pledged to elevate the status of science in government.

Four years on, Trudeau's government has lost its shine. It has kept many of its science promises, but has fallen short on key pledges, notably on the environment. Perhaps as a result, his Liberal Party is facing a much tougher reception among voters as he runs for re-election on 21 October.

As *Nature* went to press, the outcome of the election was too close to call: polls predict an even split between the right-wing conservatives and Trudeau's left-wing liberals, with the further-left New Democratic Party and the Green Party picking up the slack. Whoever wins, evidence-based policies and the environment must be at the heart of their agenda.

In its 2015 election campaign, the Liberal Party promised to right what it saw as many scientific and environmental wrongs, and in government it made several high-profile wins. The new cabinet included a dedicated minister for science, Kirsty Duncan, who was, in turn, mandated to appoint a chief science adviser to the federal government — both striking changes from the previous government.

Then, during its first month of office, Trudeau's government declared federal scientists free to speak to the media, attempting to rectify the practice of permission-seeking that had been established under the conservative administration. Duncan went on to commission the first comprehensive review of the nation's science research structure in decades. The Fundamental Science Review called on the government to re-establish a strong footing for fundamental research.

These moves are welcome, but it is too soon to say whether the use of scientific evidence in decision-making has been strengthened — it took two years before molecular biologist Mona Nemer was picked for the post of chief science adviser.

One of Nemer's mandates was to continue to address the 'muzzling' issue. A survey in 2017 found that more than half of government scientists still felt they could not speak freely, but, under Nemer's guidance, a robust and much-lauded batch of Scientific Integrity Policies followed, making it clear that federal scientists can speak about their work without requiring approval. As for the Fundamental Science Review, its recommendations have yet to be fully taken on board by the government.

Trudeau's budgets, too, have flip-flopped between wins and disappointments for Canada's researchers. The first budget, in 2016, brought a windfall that doubled the funding boost for the main granting agencies compared with the previous year; but this was followed by a surprising flatline budget in 2017, which killed off Canada's Climate Change and Atmospheric Research programme.

The following year, scientists rallied to the cause of promoting science in the run-up to the budget, and 2018's funding was hailed as

the largest investment in science in Canadian history; but, by contrast, the 2019 budget brought only small spending bumps. Several pressure groups and scientific societies have now banded together to make science a core election issue and highlight what remains to be done.

Perhaps most disappointing of all has been the Trudeau government's inability to live up to its environmental promises in the face of economic pressures.

On 17 June 2019, the federal government declared a climate emergency, and last month Greta Thunberg helped to draw 500,000 people out onto Canada's streets in one of the largest ever environ-

"A sustainable future backed by the best evidence needs leadership."

mental protests. But, at present, Canada is unlikely to meet its self-declared goal of reducing greenhouse-gas emissions to 30% below 2005 levels by 2030. The federal government's carbon tax policy is being challenged in some of the provinces — and has no support from conservatives — and a pledge

to become carbon neutral by 2050 remains vague. Even a poll of the government's own scientists found that an overwhelming majority are dissatisfied with climate-change policies.

On the bright side, according to the Global Cleantech Innovation Index (last updated in 2017), Canada rose from seventh out of 40 nations in 2014, to fourth in 2017.

In 2016, the government developed a Can\$1.5-billion (US\$1.1-billion) Oceans Protection Plan; and in 2018, it championed a non-binding Ocean Plastics Charter at the G7 meeting. That same year, Nemer also established an Independent Expert Panel on Aquaculture, to feed scientific evidence into policy decisions in what has proved to be a thorny area of conflict between industry and environmentalists.

But these achievements pale in comparison to investments in fossil fuels. The government controversially spent Can\$4.5 billion buying an oil pipeline expansion project from the Kinder Morgan energy company, to ensure that more oil from Alberta's tar sands gets to the west coast for export. Trudeau recently promised that profits from the pipeline will be used to pay for a Can\$3-billion fight against climate change, including the planting of 2 billion trees — 200 million a year, on top of the 600 million currently planted annually. But this has not mollified environmentalists or Indigenous rights activists, who are infuriated by the purchase.

The continuing challenge for whichever party wins this October will be to forge a leadership role for Canada in sustainable development — against the interests of the fossil-fuel industry. Canada ranks third in the world for proven oil reserves, thanks to its tar sands; that's a powerful economic force. But the country also has the talent and investment in new technologies — from artificial intelligence to quantum computing — to make it a global leader in an emerging economy more directed at a sustainable future.

A sustainable future backed by the best evidence needs leadership. It is a challenge that no prime minister can afford to shirk. ■