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## A Critical Vote Down Under

AN ELECTION WILL BE HELD IN AUSTRALIA LATER THIS YEAR. THE CONSERVATIVE government of John Howard has been in power for 11 years—bad years for basic science. Although medical research has done well, overall public funding of science has declined from 0.77 to 0.59% of gross domestic product, placing Australia among the bottom countries of the Organization for Economic Cooperation and Development in science investment. Public policies have also caused a decline in commercial research and innovation. Whereas previous governments had encouraged private-sector R&D with a 150% tax concession, the first Howard budget cut that program, doubling the cost of research for profitable private companies. Commercial research spending fell dramatically and has only just returned to the 1996 level.

The Cooperative Research Centres program, set up nearly 20 years ago to solve Australia's failure to turn science into practical innovations, provided attractive funding for proposals bringing scientists together with various organizations, including corporations, industry groups, and public agencies dedicated to applications of basic research results. In the early funding rounds, there was a healthy balance between commercial ventures and those aimed at the public interest such as renewable energy, integrated pest management, tropical rainforests, and the coastal zone. Under the Howard government, every one of those public interest centers was eliminated, leaving the program totally oriented toward commercial outcomes.

Previous governments had specific projects to fund R&D in energy. In the 1980s, the Australian energy research council funded pioneering work that led to efficient solar cells, improved technology for solar thermal energy and wind power, the harnessing of coal seam methane, and efficiency improvements. The Howard government dismantled that effort, and as veteran science policy analyst Julian Cribb pointed out, the absence of a concerted program of R&D on energy alternatives has left Australia dangerously exposed to the volatility of world oil supply and unprepared for the carbon-constrained world of the future. Until very recently, senior government figures, including Finance Minister Nicholas Minchin and Industry Minister Ian Macfarlane, were still denying the science of climate change. Only last month, four government members of a parliamentary committee investigating carbon capture and storage wrote a dissenting note to the committee's report. The note included the full litany of climate change denial, quoting all the usual discredited suspects from Australia and the United States. Australia has joined the United States in failing to ratify the Kyoto Protocol. Energy-related greenhouse gas emissions, now more than 30% above the Kyoto baseline, are spiraling out of control in the absence of concerted policies.

The general decline in funding has intensified competition for grants. Last year, the science minister intervened after the normal peer-review process and invited a group of unqualified ideologues to vet the recommendations of the Australian Research Council. Four grants were vetoed by the group. A chapter in my recent book *Silencing Dissent*, documents several cases in which distinguished scientists have been sidelined. The main government science organization, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), instructed scientists not to comment on issues with policy implications. The head of atmospheric research, Graeme Pearman, said that science pointed to the need for Australia to cut greenhouse gas emissions by at least 60%. This was seen by CSIRO managers as criticizing the government's refusal to set targets; Pearman was forced out of his job. Other scientists have since refused to comment on options for reducing emissions.

The Howard years have been gloomy for public interest research. The Labor Party, ahead in opinion polls, has promised to restore the funding and independence of science, but no specific commitments have been made. A Labor-held climate change summit in March convened scientists, policy-makers, and business leaders, and a promise was made to ratify Kyoto and set national targets (a 60% emissions reduction by 2050). That is a start. The scientific community will be watching with more interest than usual as we move into the election campaign.

— Ian Lowe



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