

Global warming: dire warning

Violent floods, pestilence, melting glaciers, vanishing coral reefs. This almost sounds like a passage from the Old Testament, but the words appear in the third



Is Canada heading for the world's largest increase in temperature because of global warming?

report on global warming prepared by the UN's Intergovernmental Panel on Climate Change (IPCC).

The IPCC warns that global temperatures could rise an additional 1.4°C to 5.8°C over the next century, depending on what political choices are made. Canada may experience the world's biggest increase in temperature, which could bode well for agriculture, but IPCC Chair Robert Watson says Canada has a moral obligation to reduce greenhouse-gas emissions because of their impact around the world. The panel of 2000 scientists, established in 1988, concludes that human action and inaction are largely responsible for the warming trend.

Although the technology exists to switch to less harmful fuels, the political will to do this does not, Watson says. The 800-page study, *Climate Change 2001: Mitigation* (www.ipcc.ch), concludes that switching to clean energy sources needn't be prohibitively expensive. It estimates that the average country could reduce greenhouse gases to an

acceptable level with only a 0.2% decline in annual economic growth.

The IPCC's second report, *Climate Change 2001: Impacts, Adaptation and Vulnerability*, concluded that global warming is already costing world economies at least \$36 billion a year because of "weather events" and other weather-related disasters, and these costs could escalate to \$300 billion.

The panel says man-made climate change will cause tropical diseases to spread and glaciers to melt, and the number of people facing water shortages to increase from 1.7 billion today to 5.4 billion by 2026 (see McCally M. Environment and health: an overview. *CMAJ* 2000;163[5]:533-5).

According to the as-yet unratified Kyoto Protocol, Canada would be required to cut emissions of greenhouse gases by 6% from 1990 levels. There are fears that the recent decision by the US to back out may scupper the deal. In the meantime, emission levels in Canada have risen by at least 13.5% over 1990 levels. — *Barbara Sibbald, CMAJ*

Toxic-substance testing needs \$50-million boost, report says

Canadians are exposed to some 25 000 potentially toxic substances that the government is simply ill prepared to review, a report from the National Round Table on the Environment and the Economy (www.nrtee-trnee.ca/) states.

This "means we don't know if these substances are dangerous to health," says Dr. Stuart Smith, chair of the independent round table, whose members were appointed by the prime minister. Its report, *Managing Potentially Toxic Substances in Canada*, urges Ottawa to bolster research with a \$40-million grant to the Canadian Institutes of Health Research. Smith says it will also take an additional \$50 to \$70 million to move federal research capacity to the required level. "I don't want to be paranoid," says Smith, "but you can't depend on what the company tells you, not when public safety depends on it."

The 86-page report concludes that cuts in government staff and funding have thrust Canada into this predicament. Staff in the 4 science-based fed-

eral departments — Environment, Fisheries and Oceans, Health and Natural Resources — were cut by 17% between 1994 and 1998.

This reduced capacity to assess substances is compounded by significant advances in the scientific understanding of how substances in the environment affect human health (see *CMAJ* 2001;164 [4]:503-6). These advances often point to the need for more complex — and more resource intensive — assessments.

Many of the 25 000 substances, which include pesticides, food additives such as aspartame, and other chemicals, were approved before proper scientific understanding of their potential impact was available. Previously, testing concentrated on links to cancer and/or birth defects. "We have to look at other systems such as the nervous, immune and endocrine," says Smith. "In particular, we have to know the effect on growing nervous systems of young children and adults." He would also like to see testing begin on "chemical soups" — the addi-

tive or interactive combination of various substances.

The report says Canada's environmental decision-making is too fragmented, making it difficult for the government to address issues that cut across disciplinary boundaries and departmental mandates. The US has a more centralized system, with the Environmental Protection Agency (EPA) acting as a "watchdog on both environmental and human health issues," according to Smith.

The report recommends creation of a policy-making Health and Environment Scientific Advisory Committee to support the Canadian Environmental Protection Act and the 8 other pieces of legislation that apply to toxic substances. This committee, which Smith describes as a "virtual EPA," would suggest research priorities, identify emerging issues and provide a coordinated response to substances that fall under the jurisdiction of several pieces of legislation. — *Barbara Sibbald, CMAJ*