MONITORING AND RESEARCH UNDER THE CHEMICALS MANAGEMENT PLAN

In 2006, the Government of Canada launched the Chemicals Management Plan (CMP) to further enhance its role in protecting Canadians and their environment from exposure to harmful chemicals. The CMP also provides funding for research and monitoring. Research and monitoring of chemicals in humans and in the environment helps to increase our understanding of the possible exposures and effects that chemicals could have on Canadians and their environment.

What is monitoring?

A key element of the CMP is the monitoring of chemicals in both humans and in the environment. In general terms, monitoring is the measurement of chemicals in air, water, wildlife and humans. It involves the regular collection of physical, chemical and biological data using standard methods and protocols.

Human Biomonitoring

Human exposure to chemicals is an important area of focus for the CMP. Human biomonitoring is the measurement, in people, of a chemical, the by-products it makes after it has broken down, or the by-products that might result from interactions in the body. These measurements are usually taken in blood and urine samples and sometimes in other tissues and fluids such as hair, nails, and breast milk. The measurements indicate how much of a chemical is present in that person or how much chemical a person has been exposed to. The presence of a chemical in the body does not necessarily mean a harmful or adverse effect will result.

Environmental Monitoring

Monitoring of chemicals in the environment involves measuring the concentrations of chemicals in various media such as air, water, sediment, fish or birds.

Monitoring and Surveillance in Food

Health Canada is also responsible for the assessment of risks to human health from exposure to food-borne chemical contaminants. Health Canada undertakes regular surveillance to monitor the levels of chemicals in foods and estimate the exposure of Canadians to these chemicals. Types of studies include targeted surveys of chemical contaminants in food, and Total Diet Studies that estimate the levels of chemicals to which Canadians in different age-gender groups are exposed through the food supply.

How can monitoring help protect human health and the environment?

Human and environmental monitoring are essential tools to identify potential risks to human health and the environment. Monitoring programs provide essential information used to make sound and effective public health and environmental health policies and interventions, and help to measure the effectiveness of Government actions to limit or reduce potential risks to humans and/or the environment.

Monitoring data has a variety of uses, including:

- establishing baseline levels of chemicals in Canadians and their environment and detecting trends in concentrations over time and by geographical region;
- identifying populations, regions or species that may have higher levels of specific chemicals, and who may be at higher risk of adverse health effects;
- measuring the number of people who have elevated levels of chemicals that are known to pose a risk to human health;
- examining the relationship between the concentrations of chemicals in people and the environment and observed health or ecosystem effects;
- identifying chemicals that may be of concern because they accumulate in people or throughout the food chain;
- setting priorities and taking action to protect the health of Canadians and their environment;
- assessing the effectiveness of public health and environmental actions intended to reduce exposures and risks to Canadians and their environment from specific chemicals; and
- helping to focus future research efforts on the links between exposure and health.

What monitoring is the Government of Canada doing?

Under the Chemicals Management Plan, the Government of Canada is undertaking a variety of monitoring programs, including:

Health Biomonitoring Activities

- Canadian Health Measures Survey (CHMS) – Measures of chemical exposures in 5,000 Canadians aged 6–79 years.
- Maternal Infant Research on Environmental Chemicals (MIREC) – Study to monitor exposure of 2,000 pregnant women and their babies to a range of environmental chemicals.

Environmental Monitoring Activities

- Canada has a comprehensive series of environmental monitoring programs in place, often for decades, to monitor substances in air, water and organisms such as fish. Recently these programs have been integrated and augmented under the CMP to provide a fully national program, capable of meeting the Government's existing monitoring commitments (such as the Great Lakes Water Quality Agreement, Stockholm Convention on Persistent Organic Pollutants) as well as being responsive to newer emerging contaminants of concern. This includes a network of integrated, continuous environmental monitoring and surveillance of specific chemicals across the country in outdoor air, lakes, rivers, sediments, fish and birds.
- Since many of the emerging contaminants of concern are found in products which routinely end up in landfill or wastewater, a national monitoring program has been established under the CMP to measure what chemicals are found in wastewater, where these chemicals are entering wastewater and in what quantities, and to assess the ability of treatments systems to remove these chemicals from wastewater.
- A pilot cross-country landfill monitoring program will provide information on the current state of releases of certain chemicals to the Canadian environment from landfill leachate, landfill gas, incineration and incineration by-products.

Food Monitoring and Surveillance Activities

- As part of its mandate to ensure that chemicals are not present in food at levels that would pose an unacceptable risk to health, Health Canada is responsible for carrying out Canada's *Total Diet Study* (TDS) and undertakes regular surveillance activities to monitor the level of contaminants in food.

What research is the Government of Canada doing?

The Government of Canada is conducting research to better understand the exposure and effects of a variety of chemicals that were identified as priorities under the CMP. This research involves the generation and dissemination of science-based information necessary to understand the risks chemicals may pose to both human health and the environment. It involves identifying the hazardous properties of a chemical, its fate in the environment, and how people and wildlife may be exposed and affected. The Government is also developing tools to improve detection of chemicals in people and the environment and to better screen for effects. This is being done by both Government scientists as well as academia, in partnership with industry.

Where can I get more information?

For more information on monitoring and research under the Chemicals Management Plan, visit the Chemical Substances Web site at:

www.chemicalsubstanceschimiques.gc.ca