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Soil study just the beginning of the healing

If there are long-term risks, the study will identify them

The Sudbury Soils Study will be the most comprehensive human health and ecological risk assessment ever undertaken in Canada by the time it's complete in 2005.

The range and scope of the three-year study is unprecedented on a number of fronts. It includes an extensive sampling program, a comprehensive analysis of the samples, and complex modeling of the effects of metals in soils on human health and the environment. It also includes a process of checks and balances to ensure that all the bases have been covered and the science behind the study is first rate.

Chris Wren
GUEST COLUMN

Finally, if necessary, the study will include a set of recommendations on how any undue risks to human health and the environment can be mitigated.

A group of renowned Canadian and international human health and environmental experts have been brought together to undertake the study, using the most rigorous scientific standards. On board are scientists from Laurentian University and the University of Guelph, as well as consulting experts in ecological risk assessment, human health risk assessment, air monitoring and modeling, medical consultation, soil and vegetable sampling analysis, public consultation and communications, and many more disciplines.

This team has been assembled under an umbrella group, Sudbury Area Risk Assessment (SARA), of which I am the director. Another team of independent Canadian and international experts will be hired at the end of the study to review our results. This review will serve as a mechanism to triple-check the study's findings and recommendations.

The study will determine the effects of more than a century of nickel and copper processing on human health and the environment in the Greater Sudbury area. It was prompted by a report published by the Ministry of the Environment in 2001 which found elevated levels of metals in soils, particularly near the historic smelting centres of Coniston, Copper Cliff and Falconbridge. The ministry recommended further detailed evaluation of soils throughout the community, as well as a detailed human health and ecological risk assessment. Inco and Falconbridge voluntarily accepted this recommendation and began to work with other groups to develop the soils study.

The study includes testing more than 12,000 samples of soil from 700 sites in the Greater Sudbury area; hundreds of vegetables and soil samples from almost 70 home gardens; blueberries; wild mushrooms; local produce; over 200 fish from several lakes; over 500 samples of vegetation and soils from 17 wildlife areas; more than 600 samples of air from 10 sites; as well as samples of water from wells and municipal drinking water sources; and more.

The tests will measure the concentrations of metals such as copper, nickel, arsenic, cobalt and lead in each of the samples. Once the analysis is complete and the results are compiled, detailed exposure assessment models will be used to help determine the potential effect these concentrations have on human and ecological health.

For example, a laboratory simulation of the human digestive system will determine what concentration of metals in food eaten by a person will be absorbed into the body through the stomach, and what effect that may have on their health. These assessment models will ultimately be used to determine whether the levels of metals found in soils, air, water and foodstuffs pose a health risk to humans, and to fish and wildlife in the area.

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Based on the available information, there are no expected immediate health risks to people living in any of the local communities related to metals in soils. If there are long-term risks, the study will identify them, all information about those risks will be made public, and appropriate action will be taken to address them. In the meantime, study results will be released to the public as they become available.

Built into the study process are a number of checks and balances to guarantee the integrity of the process and the science behind the study. The Sudbury Soils Study is being overseen by a community partnership of representatives of the Ontario Ministry of the Environment, the City of Greater Sudbury, the Sudbury & District Health Unit, Health Canada's First Nations and Inuit Branch, Inco and Falconbridge.

SUDBURY STAR FILE PHOTO

Mining has left a legacy of denuded landscapes and altered soils. But just how bad soils are in Greater Sudbury, and the effect this soil has on the food chain and on human health, is unknown. The Sudbury Soils Study, the most ambitious study in Canadian history, aims to answer these questions.

This group is called the study's Technical Committee, and they each have technical staff from their organizations who participate in reviewing the study process. Both Falconbridge and Inco, which are funding the study at an estimated cost of $4 million to $5 million, have committed to taking the necessary actions to remediate the soils where the study identifies a need.

Monitoring the study process is an independent observer, Franco Mariotti, a well-known local scientist who attends Technical Committee meetings and provides his views about the study to the community on a regular basis.

Two scientific reviewers known across North America for their expertise are providing additional advice along the way on the approach the study is taking and the results that will be reported. These advisers are Ron Brecher, a human health risk assessor based in Guelph, and Stella Swanson, an environmental risk assessor who works out of Calgary. They are not part of the SARA Group, but instead review the work being done by the SARA team and provide independent advice.

Ivan Filion, executive director of Research, Technology and Advanced Learning at Cambrian College, is chair of the Public Advisory Committee (PAC). This committee is comprised of a cross-section of citizens of Greater Sudbury who have volunteered to participate in the study process.

The PAC provides input, advice and public perspective to the decisions and progress made during the study process. The PAC will also be asked to help select the team of independent experts who will take an arm's-length look at the process and results at the end of the study — once everything is complete. These reviewers will be international experts in their particular scientific fields.

Open process

An extensive consultation and communications component has been incorporated into the study process. Members of the community have plenty of opportunities to be informed and to have a say in the process of conducting the study.

A series of open houses and workshops are being held, newsletters and news updates are issued on a regular basis, a website has been established and is regularly updated and a toll free telephone hotline (1-866-315-0228) has been set up to allow citizens to ask questions or obtain information.

As director of the Sudbury Soils Study, I will also be making presentations to community groups throughout the study process, and welcome opportunities to speak to interested organizations.

Among industrial cities, Greater Sudbury has become a world leader for the efforts undertaken by government, the public and industry to protect and restore the environment. The Sudbury Soils Study will build on this tradition, as residents work together to improve the health and well being of their community. As the science of understanding the complexities of human and ecosystem health develops, the Sudbury Soils Study is a logical step in the community's ongoing environmental initiatives.

■ Chris Wren is the director of the Sudbury Soils Study.