



PHOTO COURTESY OF
GRAEME OXBY

MINING

Canada is one of the world's largest mineral producers and the world's leading exporter of minerals, metals and related products. From 1993 to 1995, the value of Canada's total exports increased from \$29 billion to over \$40 billion. Canada is the world's fourth-largest coal exporter.

With access to abundant, high-quality reserves, including the recently discovered Voisey's Bay nickel-copper-cobalt deposit and the Lac de Gras diamond deposits, Canada's minerals and metals industry produces some 60 non-fuel mineral commodities. These resources, combined with a well established mining infrastructure, an efficient transportation system and a highly skilled and productive workforce, have earned Canada an international reputation for excellence in mining. In 14 of the last 26 years, Canada has ranked first in the world as a destination for international mineral exploration capital.

Canada is committed to the sustainable development of minerals and metals and is playing a lead role internationally in the development of approaches aimed at the sound management of these resources.

MINING TECHNOLOGIES

To achieve and maintain Canada's impressive level of mineral production, Canadian companies have developed unique mining and exploration expertise in all aspects of underground and open-pit mining. In addition, more than 85 per cent of the mining work force in Canada uses electronics, robotics and advanced telecommunication technologies.

Canadians have pioneered the development of exploration techniques in the areas of ground and airborne geophysics. Canadian companies have captured 70 per cent of the world market for airborne geophysical

**CANADA LEADS
THE WORLD IN THE
PRODUCTION OF
POTASH, ZINC AND
URANIUM AND
RANKS AMONG
THE TOP FIVE
INTERNATIONAL
PRODUCERS OF
NICKEL, CADMIUM,
ASBESTOS,
ALUMINUM, COPPER,
GYPSUM, COBALT,
MOLYBDENUM, LEAD
AND GOLD.**

surveying, while Canadian geophysical equipment manufacturers, related software developers and data interpretation companies hold about 60 per cent of these world markets.

Canadian technologies improve mine safety, enhance environmental systems and increase productivity, allowing mining companies to explore deeper ore bodies. Canadian mining companies are developing the "intelligent mine" — one that can automatically detect changing mine conditions and respond appropriately. Canada has developed complete automated systems for mineral processing. It is the world leader in microwave applications to refractory and carbonaceous ores. This technology dramatically reduces energy requirements, improves recoveries and neutralizes mining wastes. Other technologies developed by Canadian companies, such as three-dimensional geological computer modelling and mine planning systems, maximize the value that can be extracted from an ore body.

Canada's expertise in mining equipment ranges from small diameter borehole survey instruments to tunnelling machines. Canadians are innovative designers and manufacturers of custom and utility vehicles, trucks, and load-haul-dump equipment of all sizes, as well as computerized maintenance and dispatch systems for underground mining. Canada's innovative mining equipment also includes dual rotary drills that penetrate and case at the same time, reverse circulation drilling machines, and high-technology equipment for bulk handling of materials. Canadians are at the forefront in the use of global positioning systems in open-pit mines. Other key technologies developed in Canada include three-dimensional drill hole technology that simplifies the process of delineating a mineral deposit; flash smelting, and continuous smelting, as well as world-leading assaying techniques.

Canadian mining companies have been innovators in developing leading-edge technologies to improve environmental quality. Canadian environmental service companies are enjoying rapid international growth. Among the environmental technologies in which Canada excels are exhaust purification, which ensures a clean underground environment; dewatering and fluidizing methods for the treatment of tailings; and a full range of groundwater monitoring instrumentation. Canada's mining industry was the first in the world to develop and adopt a national environmental policy.

Canada has a well established and effective scrap metals recycling industry, which includes many companies that have expertise in recycling electronic scrap.

