

**CHRISTOPHER A. JACOBS, C.Eng.  
Vice President and Mining Economist**

**BACKGROUND**

Christopher Jacobs is a Vice President with Micon International Limited, based in the Toronto office. He is a chartered engineer and holds an MBA, with over 30 years of experience in the management of mineral exploration, project development and mining operations.

Since joining Micon in 2004, Chris has undertaken due diligence, feasibility study and mine evaluation assignments involving gold, silver, nickel/copper/cobalt, iron, lead/zinc, tin, chromite, vanadium and platinum deposits. Previously, he was with Anglo Platinum in Johannesburg where he was responsible for the technical and economic evaluation of mining operations and projects. Prior to this, Chris was employed in the exploration, development and operation of gold, chrome and nickel mines in Zimbabwe.

**ASSIGNMENT EXPERIENCE WITH MICON**

**Scoping, Pre-feasibility and Feasibility Studies**

- Review of preliminary assessment, open pit nickel project, ON, Canada
- Economic analysis for expansion plan, open pit gold mining, Mexico
- Economic analysis for feasibility study of open pit gold mining, Venezuela
- Assessment of underground mining potential for owner, ON, Canada
- Preliminary economic analysis of gold project, ON, Canada
- Feasibility Study economic analysis, bauxite deposit, Guyana
- Economic analysis for feasibility study of open pit gold project, QC, Canada
- Preliminary assessment of open pit gold deposit, NB, Canada
- Feasibility Study economic analysis, PGM deposit, ON, Canada
- Preliminary economic analysis of Pb/Zn/Ag deposit, Bolivia
- Economic analysis for scoping study of gold/silver deposit, Mexico
- Project management, iron ore pre-feasibility, Sweden
- Evaluation of joint venture, gold deposit, Canada

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- Preliminary assessment of gold project, MB, Canada
- Preliminary economic analysis of chromite deposit, ON, Canada
- Economic analysis for scoping study of gold deposit, Canada
- Economic analyses for feasibility study of gold project, QC, Canada
- Scoping study for expansion of open pit gold mine, Venezuela
- Project management, preliminary assessment of open pit copper deposit, Chile
- Feasibility study, open pit Ni/Co project, Canada
- Economic analysis for scoping study of gold deposit, Ecuador
- Pre-feasibility study, gold deposit, Mexico
- Economic analyses for pre-feasibility study of gold project, QC, Canada
- Project management, pre-feasibility study, open pit and underground uranium, NL, Canada
- Scoping study for proposed open pit gold mine, Colombia;
- Conceptual study for open pit copper mine expansion, China.
- Scoping study for proposed vanadium open pit mine, Brazil
- Scoping study for proposed re-opening of gold mine, MB, Canada
- Economic assessment of proposed copper mine expansion on behalf of Govt, B.C., Canada
- Economic analysis of feasibility study for open pit Ni/Cu project, Canada;
- Review of proposed base metal mine expansion project, Sweden;
- Asset valuation within Competent Persons Report for major gold producer, Russia
- Economic analysis and compilation of feasibility study for Ni/Cu project, Canada
- Pre-feasibility study for re-opening Pb/Zn mine, NB, Canada
- Economic review of Ni/Cu project, Turkey, on behalf of lenders
- Economic analysis for feasibility study of gold project, Dominican Republic
- Review of mineral resource estimate for gold deposit, NWT, Canada
- Provisional analysis of open pit PGM mining economics Ontario, Canada
- Techno-economic evaluation of a proposed underground platinum mine, South Africa
- Economic evaluation of a proposed underground nickel mine, Canada
- Technical and economic evaluation of a proposed UG gold mine development, Russia

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**Due Diligence and Independent Engineer Assignments**

- Independent Engineer for Lenders, UG copper/cobalt/zinc, Mexico
- Due diligence evaluation of open pit Cu/Mo/Ag mine, AZ, USA
- Due diligence evaluation for Lenders, iron ore, Sweden
- Independent Engineer on behalf of Lenders, UG chromite mine, Kazakhstan
- Advice to Lenders, UG silver mining, ID, USA
- Independent Engineer for Lender, iron ore, Brazil
- Lender's Independent Engineer, gold project, SK, Canada
- Due Diligence report for Lender, proposed Ni/Cu/PGM open pit mine, USA
- Review of cost forecasts at a Russian tin mining operation for potential investor
- Due Diligence and advice to Lenders, gold/base metals, Eritrea

**Other Assignments**

- International benchmarking study into the application of communications and automation technology in underground mining
- Review of trackless operations being used at some South African mines, on behalf of a Chinese base metal mining company

**PRIOR EXPERIENCE**

**2001 – 2004:                      Manager: Strategic Planning, Anglo Platinum,**

Mr Jacobs' most recent operating experience was with the strategic planning team of Anglo Platinum in Johannesburg where he was responsible for the technical and economic evaluation of open pit and underground mining projects worth over US\$1 billion. During this period he was also involved in corporate/business development work, including successful joint venture negotiations.

**1995 – 2001:                      Operations Director, AmZim Gold Mines Ltd, Zimbabwe**

Chris managed Anglo American plc's gold division in Zimbabwe through a period of rapid and profitable growth. As well as providing operational management, this involved determining the techno-economic feasibility of open pit, heap-leachable gold resources, together with the administration of engineering contracts and the negotiation of acquisitions and joint ventures, resulting in a four-fold increase in gold production. Responsibilities also included ongoing operation and expansion of the Iron Duke underground pyrite mine.

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**1991 – 1995: Technical Director, Cluff Resources Zimbabwe Ltd.**

Chris was responsible for exploration and resource development for this 100 000 oz/yr gold producer, including property assessments elsewhere within the southern Africa region. At Cluff's Freda Rebecca gold mine, he led the successful feasibility study for development of a trackless underground operation below the open pit mine. Prior to that, he had been responsible for resource evaluation and mine planning on the open pit feasibility study that established Freda Rebecca Mine as Zimbabwe's single largest gold producer.

**1980 to 1987: Field/Staff/Senior Geologist, Anglo American plc, Zimbabwe**

Holding increasingly responsible positions with Anglo American in Zimbabwe, Chris worked on the evaluation of gold, chromite and nickel deposits, and in field exploration for nickel, copper, gold, platinum and chromite.

**EDUCATION**

MBA 2002/03: Gordon Institute of Business Science, University of Pretoria, RSA  
B.Sc. (Hons) 1980: Geochemistry, University of Reading, England

**PROFESSIONAL AFFILIATIONS**

Member: Institute of Materials, Minerals & Mining (IoM<sup>3</sup>), London, England  
Member: Canadian Institute of Mining, Metallurgy and Petroleum  
Chartered Engineer: Engineering Council, UK (CEng. Registration no. 369178)

**PUBLICATIONS AND PRESENTATIONS**

Value Creation in Mining: an Analysis of South Africa's Platinum Industry, MBA Thesis, University of Pretoria, Gordon Institute of Business Science, 2003.

"Isn't Bigger Always Better? Applying Economic Profit to Exploration Management", Presentation to CIM Conference, Toronto, May, 2006.