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CONFERENCE REPORT

CIM-ICM Vancouver 2002

Canadian Institute of Mining,
Metallurgy and Petroleum
104th Annual General Meeting
Vancouver, British Columbia
28 April-1 May 2002

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Some 1062 technical delegates assembled at the Vancouver Convention and Exhibition Centre to attend this conference, which had the general theme "Mining, Minerals and Society – A Future in Balance." Taking place against a backdrop of significant increases in base and precious metal prices over the past 6+ months, the conference featured a real attempt to reach out beyond the traditional mining community, and was accompanied by a mood of optimism about the future. With the exception of diamond and oil sands mining, until now there has been little to be optimistic about for some time. Metal mining in particular has been out of favour: Bre-X, tailings dam and slope failures, low profitability, and post-closure issues have all taken their toll. As one paper noted: "Mining: Everybody Needs Us, Nobody Wants Us...". Too few people are aware that our reliance on mining is higher than ever, and that the mining industry is changing rapidly in all sectors. The town hall style Plenary Session with the above title served as a focus for the rest of the meeting: the approximately 200 technical papers over three days amplified this theme, as well as covering the traditional technical areas of interest. Sustainable development (of which, more below) figured prominently in many presentations. The 25 major

sponsors helped ensure a successful meeting.

FORMAT

Located in a magnificent ocean-side setting, the Vancouver Convention Centre (VCC) is a jewel when the sun shines (which it did three of the four days). The meeting was well organized. Except for the Plenary Session on Monday afternoon, there were eight concurrent technical sessions featuring half-hour papers, commonly with time for a few questions. Technical sessions were generally well attended. Moving from one session to another is easy at VCC. Most sessions were on schedule, facilitating easy transfers from session to session. Morning sessions generally ran from 8:45 a.m. to 11:30 a.m., and afternoon sessions from 2:00 p.m. to 4:45 p.m. The program and abstracts booklet is small and lacks single page tables of sessions, which made it a challenge to use. Three workshops took place on Sunday before the main meeting, on risk assessments in mining, community engagement, and research needs/opportunities. Details should be available on the CIM Web site. Other events included the CIM Tradex Show, an opening ceremony, an awards gala, reception and dance, the annual meeting and business lunch, and a social program for accompanying guests.

PLENARY SESSION

A brief welcoming statement by British Columbia Mines Minister Richard Neufeld opened this Monday afternoon, full-house event; no competing technical sessions were scheduled. CIM Vancouver 2002 Honorary Chairman John Willson, former President of Placer-Dome, then noted that the organizing committee is conscious of the tides of change, and wanted to do something that would lead to improvement. The resulting town hall-

style two and a half-hour session was skilfully moderated by CBC TV's Peter Mansbridge. Opening statements were by panellist David Kerr, Chairman and CEO of Noranda, and by Glenn Miller, University of Nevada, Reno, and VP of the Sierra Club. Kerr noted the need for an adequate business case to persuade mining companies to move toward sustainable development. He believes that this case can be made easily, not least because shareholder value can be increased by integrating sustainable development principles into routine company operations, as an important means of eliminating or greatly reducing unwanted social and environmental costs. Miller spoke about the need for now-globalized non-governmental organizations (NGOs) to work with mining companies on issues including mine closure, human rights (particularly centred on indigenous peoples), raising the performance bar, and ensuring the presence in all countries of the best regulatory agencies possible.

The remainder of the main plenary session consisted of audience-panellists interactions as questions, comments, responses, and dialogue, moderated by Peter Mansbridge. In addition to Kerr and Miller, panellists included Craig Andrews, principal mining specialist, World Bank, Washington, who is familiar with countries around the world. He noted that the same issues are present everywhere, especially community-mining company interactions, a particular challenge in developing nations. Jim Carter, President and Chief Operating Officer, Syncrude Canada Ltd., reminded us that Syncrude has had an environmental and community group since 1974, and now has about 750 aboriginal people on the payroll. Glenda Ferris, consultant and environmental/social activist, northwestern British Columbia, has spent 22 years dealing with

downstream contamination from a closed silver mine: progress in cleanup and monitoring has been achieved, but with difficulty and virtual burnout of community volunteers. Danny Gaudet, self-government chief negotiator, Deline Lands Corporation, Northwest Territories, noted that aboriginal people identify closely with land – much more so than typical city-dwellers – and want to be both consulted and involved in mining projects. Gaudet lauded Syncrude's initiatives, but believes that there is room for improvement everywhere. Tony Hodge, consultant and North American representative for Mining, Minerals and Sustainable Development (MMSD) (substituting for Richard Sandbrook, Director-General, MMSD, who could not attend), commented on the dramatic shift over the past few decades toward a more responsible mining industry, now followed by a call by society to participate in decision-making processes. Glenn Miller said that it is in the interest of mining companies to provide a technical understanding of the process and opera-

tion to communities; and David Kerr stated that although in Canada the relationship between a company and the local community are the main focus for social responsibility, internationally governmental reform is a larger issue. This successful Plenary Session was followed on Tuesday morning by Plenary Extension I, "Minerals and Society" (four papers), and Tuesday afternoon by Plenary Extension II, "Communities and Needs" (five papers). The plenary extension sessions provided specific examples of progress, approaches, problems, and future goals.

Considering all three plenary sessions and the ensuing discussions, here's what I heard in terms of what is important for today's mining industry in the move toward greater social responsibility/sustainable development. *On issues:* All issues are local! Deal with them, openly and honestly. *On community:* Involve and inform communities, rather than trying to manage them. Foster capacity (e.g., education, skills-development) rather than dependence. *On*

aboriginal communities: this latter point also applies. There are excellent examples of employment and involvement of aboriginals: Syncrude, the diamond mines Ekati and Diavik, and the Red Dog Pb-Zn mine in Alaska, all discussed at this conference. Publicize and build on these. *On image:* what is prized is positive action, not platitudes or stone-walling, too frequent in the past. *On change:* continue to demonstrate a commitment to do things better, both now and in the future. *On legacy issues:* the legacy of past practices can be highly damaging. As difficult and complex as post-mine closure issues are, it is essential that they be recognized and dealt with. This involves everybody – industry, communities, governments, academics, activists – as these are societal issues. *On progress:* Get the message out! There are a growing number of success stories, from aboriginal involvement to exemplary mine closures (e.g., Island Copper, discussed at the conference). Everybody needs to know of these. *On the nature of the mining industry:* this is not a monolithic industry with the same face everywhere: like everything else in modern society, complexity is the norm, with a wide spectrum of expertise, capitalization, capabilities, problems, and successes. Failure of an Enron or a Bre-X doesn't mean that we write off the whole utility or mining industry. In almost every aspect, dialogue and co-operation are key, not confrontation or defence of entrenched positions. Much progress has been made. At the close of the town hall-style session, moderator Peter Mansbridge congratulated panellists and audience, noting that he could not remember any other time when industry/corporate representatives met with stakeholders to engage in such open dialogue.

TECHNICAL SESSIONS

These included two general types of papers: those dealing with key issues as typified by the Plenary Sessions, and those dealing with new technology. According to the organizing committee, papers were grouped and sessions titled to demonstrate how all mineral activity is related to sustainable development. Papers amplifying the Plenary Session theme included those in Water, Air and Resources (WAR) sessions, on the sharing of resources and environmental aspects



Figure 1 CIM Vancouver 2002 plenary session panellists and moderator. Standing (from left): John Willson, Honorary Chairman, CIM Vancouver 2002; Tony Hodge, consultant and MMSD North American representative; Danny Gaudet, Deline Lands Corporation, NWT; Craig Andrews, World Bank, Washington, DC. Sitting (from left): Peter Mansbridge, moderator; David Kerr, Chairman and CEO, Noranda; Glenda Ferris, consultant; and Glenn Miller, VP, Sierra Club, USA. Missing from photo: Jim Carter, President and Chief Operating Officer, Syncrude Canada Ltd. From the *CIM Reporter*, 30 April 2002; used with permission.

(some session titles: Enhancing Credibility, Sharing of Resources, Global Impacts and Initiatives); papers in Earth and Resources (EAR) sessions focussing on mine reclamation and geology (some session titles: Closure and Reclamation, Geology of Precious Metals, Geology of Base Metals); and those in Perspectives on Energy and Conservation Elements (PEACE) sessions (some session titles: Alternative Energy Systems, Coal Advances, Oil Sands Innovations, Canadian Mining Status and Technology).

Papers on or related to new technology included those in Capital and Production (CAP) sessions, on metal mining, maintenance/engineering, mineral economics and risk analysis (some session titles: New Mining Projects, Innovative Hoisting, Metal Markets and Mirages, Metal Mining); and those in Knowledge and Information Transfer (KIT) sessions (some session titles: Industrial Minerals - Community Needs and Challenges, Mine Information, Material/Metals Recycling, Diamonds) KIT I papers were on mineral developments, metals and materials recycling, and new mineral processing innovations. KIT II papers covered automation and advanced information systems, whereas KIT III papers covered mine safety and research, and rock mechanics. There was also a half-day session on education.

With eight concurrent sessions in progress for two and a half days, I was only able to hear a minority of papers. Here are a few impressions.

- Because all mining is a waste management process with environmental consequences, there is much interest in characterizing waste including its mineralogy, geochemistry, and reactivity, to minimize contamination. Some settings, *e.g.*, the Diavik diamond mine set to go into production in late 2002, provide exemplary models of characterization of waste and its actual/potential reactivity: their research group has more than 3 years of experimental weathering data, and a thorough knowledge of the composition and reactivity of Diavik waste. There is also much interest in acid mine drainage: the Canadian MEND (Mine Environment Neutral Drainage) program is a success, and has helped to foster international develop-

ments, including the International Network for Acid Prevention (INAP). On tailings disposal, we learned that submarine disposal of waste rock from the successful – and successfully closed in 1995 – Island Copper Mine has had far less severe environmental impacts than if land disposal had been adopted.

- In the Education session we learned, from the Mining Matters program of PDAC, that the key aspect of reaching children on mining/earth science issues is to provide teachers with resource materials and let them design programs or incorporate material in the curriculum. In Ontario, close to 60,000 students have been exposed to a grade 7 Mining Matters unit. British Columbia is also a leader in reaching out to teachers; here the focus is to reach children early but not with chalk and talk and text, but with direct (*e.g.*, field trips) involvement: “Tell me, I might remember; show me, I might forget; Involve me, I will understand,” in the words of one of the teacher presenters.
- In a Water, Air and Resources session on Global Standards it was noted that the mining industry in the 20th century moved from small-scale, entrepreneurial business to a massive, highly mechanized main stream piston of the economy with the need for global standards developed by early engagement of all parties, openness, and transparency.
- “Green” industrial minerals were outlined in a paper in one of the KIT sessions: these are zeolites, perlite, peat, calcium carbonate and others, which can be used in environmental cleanups or substituted in industrial processes because they are less reactive or environmentally damaging than other minerals.
- On diamond mining in Canada, both the Diavik (Aber Diamond Corporation; production early 2003) and Snap Lake (De Beers Canada, full production in 2006) deposits were reviewed. Ekati has been producing diamonds since 1998; when Diavik production begins, Canada will be producing about 12% of the world’s gem-quality diamonds: this percentage will be even greater when Snap Lake goes into production.
- In a PEACE session on Alternative Energy Systems we heard that geothermal energy has much potential

in Canada: in British Columbia, the only country on the circum-Pacific ring of fire that has not developed commercial geothermal power, it is estimated that up to 20% of the total electric power demand of the province could be met from geothermal energy generation from young volcanic areas including Meager Creek.

- Closing of the BHP Minerals’ Canada Island Copper Mine in 1995 provides a clear example of how to close a mine properly. During the life of the mine and up to closing, mine personnel participated in municipal and regional government and community affairs. As closure approached, the mine made available the mine’s physical assets including power, water, buildings, deep-sea dock, and cleared land for commercial/industrial uses. The result is that the mine facilities are now an industrial site. Highland Valley Copper mine in south central British Columbia is a second example of a successful mine closure, owing in part to extensive community involvement.
- The World Bank is playing a lead role in fostering pilot projects, monitoring, and reporting activities that are part of the Millennium Development Goals as adopted by the United Nations in year 2000. These goals (www.undp.org/mdg/) include eradicating extreme poverty and hunger, achieving universal primary education, reducing child and maternal mortality, and ensuring environmental sustainability. As an international activity that can and does enrich local communities, mining has much to offer in the achievement of these goals. As one example, the Ok Tedi gold-copper mine in Papua-New Guinea, despite a massive tailings dam failure early in the life of the mine, currently is the single largest business contributor to the economy of Papua-New Guinea (www.oktedi.com). Life expectancies, infant mortality, primary education, health, economic opportunities and literacy have all risen dramatically as a direct result of the Ok Tedi mining activity of the past 18 years. At present, planning is underway for closure in about 9 years, through training for other industries, including fishing and rubber manufacture. STAND – skills transfer and no dependency – is a key approach

in planning for closure of Ok Tedi.

- In Canada, oil sands mining activities continue to boom. A Regional Issues Working Group has 14 subcommittees involving 450+ people to keep on top of all issues, particularly those affecting communities. Oil sands mining is a major economic stimulus to northern Alberta: for each person hired at a mine location, about three people are hired in Fort McMurray. Using today's mining and *in situ* technology, about 315 billion barrels of the deposits are economic; about 20% of these reserves are recoverable by mining. Current production is about 800,000 barrels per day, now representing about 35% of Canada's crude oil production; this could go to 2 million barrels per day. Some \$6 billion was spent on ~63 projects in 2001. Projected project expenses as of January 2001 were \$51 billion; by January 2002, they had risen to \$87 billion. These are forecasts: many factors can affect what actually happens in terms of development, including regulatory approval, aboriginal issues, capital mobility, commodity prices, and particularly ratification or non-ratification by Canada of the Kyoto treaty. Future development on anything like the present scale will yield enormous revenues to governments, particularly Alberta.
- PDAC is endorsing and coordinating the Environmental Excellence in Exploration (E3) project. This activity is driven by two aspects of exploration: environmental considerations, and socio-economic factors. The plan is to create an e-manual of recommended practices for distribution on the Internet, with continued updating and maintenance as information becomes available. These will be recommended practices for voluntary adoption; there are no plans for enforcement. This project is an important part of the mining industry's drive toward sustainable development.
- The Mining, Minerals and Sustainable Development project (MMSD) is well underway: visit www.iisd.org/mmsd/ for news of progress. Today's reality is that there is a push from everywhere for change from past practices toward procedures that can be sustainable.
- The CIM business luncheon featured an

address by the Honourable Stan Hagen, Minister of Sustainable Resource Development for British Columbia. Noting the major contribution of the mining industry to the province's economy, Mr. Hagen suggested that major tax and regulation changes either introduced or planned by the British Columbia government will be a major stimulus to the mining industry, especially so if aboriginal land claims issues can be resolved. In my view these statements have to be weighed against the planned near-disappearance of the British Columbia Geological Survey Branch, one of Canada's most outstanding and mining-oriented provincial geological surveys, by 2004.

EXHIBITS

Some 219 CIM Tradex exhibitors are listed in the Program and Abstracts volume: as usual, one could spend the entire meeting in the Exhibits area. Heavy equipment and new technology figured prominently. There was also an Exhibitor's theatre in an adjacent room, where some 26 short films were available for viewing on days 1 and 2 of the conference.

MORE INFORMATION

Many of the approximately 200 papers given at the conference should become available through CIM. All of the conference papers have a unique identification number such as WEAM-357. This should provide a means to locate any given paper and determine whether it is or will be available. Consult the general CIM Web site, www.cim.org, or the CIM Vancouver 2002 Web site, www.cimvancouver2002.org, for details, including availability of other material, *e.g.*, the program volume from the conference.

SOME CLOSING COMMENTS ON SUSTAINABLE DEVELOPMENT

This concept figured prominently in many papers given at the conference. Its original definition by the Brundtland Commission referred to "development that would meet the needs of the present without compromising the ability of future generations to meet their own needs." As vague as this term is, it seems to have caught the attention of many sectors of private enterprise, including the

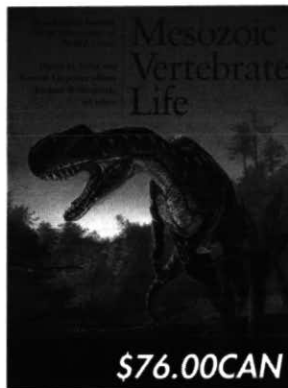
mining industry. Most ore deposits by their very nature are not "sustainable," but have a finite life. Thus in mining the term is being used to express a different kind of mining, a kind that is socially responsible to people, be they local or aboriginal communities, less developed countries, or even civilization as a whole. Critics of the concept say that it is too vague, that it attracts hypocrites who say one thing and do another, or that it fosters delusions that better methods or practices are being used when they are not. Others argue that the vagueness of the term is advantageous, as it represents "creative ambiguity" that can lead to original thinking that might never occur if a rigid definition were adopted, that many likely would reject. Observing CIM Vancouver 2002 and similar recent mining meetings, it seems to me that the interest in sustainable development on the part of the mining industry, however vague the term may be, is genuine, and represents an honest desire and attempt to be more socially responsible, "to do things better." Society is demanding this and, in a negative sense, continuation of the old practices that led to acid drainage, tailings dam failures, and similar misfortunes might well result in the loss of mining's licence to explore for and exploit ore bodies. In a positive sense, sustainable development, even as vague as it is, can represent a new and better way of doing business. This is what I think I'm hearing at a meeting like CIM Vancouver 2002. If the alternative should turn out to be the case, industry were to adopt a kind of cosmetic environmentalism such that old practices continue - business as usual - under the guise of the new sustainable development umbrella, I would see large problems ahead for mining. Thus in terms of image, stature, ability to attract capital, and personnel, and to be able to explore for and extract ore bodies, much depends on real change. As an interested observer rather than an active participant in mining, I'm both impressed by, and optimistic about, what I see and hear at these meetings. The future for mining does look better, and meetings of the quality of CIM Vancouver 2002 will help ensure that it is better.

Sustainable development as it pertains to mining was discussed at length at a meeting directly following CIM

Vancouver 2002, "Sustainable Mining in the 21st Century – A Workshop for Geoscientists," held in Vancouver 2-3 May under the auspices of the NUNA 2001 Committee on Sustainable Mineral Resources Development. Further information on this meeting: <http://conferences.eas.ualberta.ca/sum21/>.

An additional meeting of interest is the Global Mining Initiative conference to be held in Toronto 12-15 May 2002, sponsored by 28 of the world's largest mining companies and expected to attract about 500 people. This will be the first public examination of the 600-page report of the Mining, Minerals and Sustainable Development project (MMSD) issued on May 1, the third day of CIM Vancouver 2002. In September 2002 the World Summit on Sustainable Development will take place in South Africa, with an expected major contribution from the mining industry on planned community and environmental actions following from the MMSD report.

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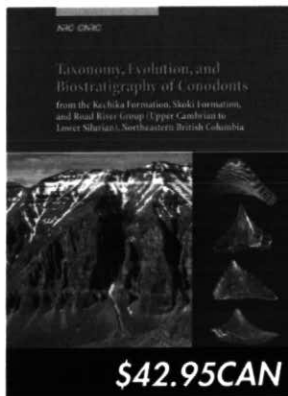
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