

ECONOMICS & BUSINESS SPOTLIGHT

Fall 2002



Division Director's Message

In August, I had the opportunity to lecture and participate in a workshop in Lusaka, Zambia, on the management of mineral wealth and the role of minerals in economic development, organized by several UN agencies. It was a fascinating experience.



More than thirty government officials and others from some fifteen African nations participated, along with several academics and UN representatives. The context for the workshop was the observation that many mineral-rich nations are very poor and have had trouble converting their mineral wealth into broader economic development. The workshop focused on strengthening the link between mining

and economic development. Over the three days of the workshop, we discussed and debated the special issues and challenges for public policy in mineral-dependent economies; the role of international law, national sovereignty, and access rights in mineral development; mineral rent and revenue management; and diversification, social capital, and sustainable livelihoods in mineral economies.

Although there are no simple solutions to the problems of developing nations, good governance and quality education clearly are critical issues. The workshop reminded me of the small but important contribution that we make to educating and training people for professional careers and public service—through our academic programs, professional publications, public lectures,

and other forms of outreach.

On a different subject, I am pleased to announce that, considering all graduate students in the Division of Economics and Business (EB) as a group, EB is the largest graduate program on campus.

I hope you enjoy reading this issue of *Spotlight* and catching up with activities in the Division of Economics and Business.

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Division Facts at a Glance.....

Undergraduate Majors—111

Undergraduate Minors—80

Engineering & Technology

Management M.S. Students—56

Mineral Economics M.S. Students—34

(Includes Petroleum Economics & Management [11])

Mineral Economics Ph.D. Students—27

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MMSD Taps EB Faculty

The Mining, Minerals, and Sustainable Development (MMSD) Project examined the role of the mineral sector in sustainable development, especially in developing nations. A two-year process of research and consultation, MMSD was sponsored by more than forty mining companies, government agencies, international organizations, and other institutions from around the world. Four EB faculty members contributed to this international project.

John Tilton prepared a manuscript on the long-run availability of mineral resources. A revised version of this manuscript is soon to be published as a book by Resources for the Future entitled *On Borrowed Time? Civilization and the*

Threat of Mineral Depletion. Rod Eggert prepared a study that surveyed the main economic themes important in the debate about mining and sustainable development. At the national level, is mining detrimental to broader economic development? At the local level, what are the economic effects of mining on regional development? What are the key challenges for government in managing mineral wealth? Graham Davis contributed a paper on project-assessment methodologies for appraising mining projects and whether they are consistent with sustainable development. Jim Otto participated in the North American team that prepared *Seven Questions to Sustainability: How to Assess the Contribution of Mining and Minerals Activities*,

a set of practical principles to evaluate whether a particular mining activity is consistent with the concepts of sustainability.

The contributions by all four faculty members served as background material that informed the preparation of the final MMSD report, released last May at a major international convention in Toronto and recently published by Earthscan as the book, *Breaking New Ground*.

ETM Capstone—Managers in the Making

The Engineering and Technology Management Program (ETM) offered its first Capstone course (EB585) in the spring of 2002. This business integration course gives students the opportunity to apply the principles of business and corporate strategy they learned in the ETM curriculum to real-life situations on a Web-based business simulation program.

Using the Capstone business simulation package, students learn to manage several business functions including R&D, marketing, production, and fi-

nance. The students work in teams where they assume both functional and product responsibilities that influence their company's overall performance. Competition is stiff as they compete against their ETM colleagues in a fast-paced realistic industrial scenario.

"The Capstone simulation generated considerable excitement for our ETM students," says Michael Walls, ETM Capstone instructor. "The planning and execution of a detailed business strategy, as well as the quick feedback on each team's effectiveness in a competitive

environment, provided a very stimulating learning environment. The business simulation's hands-on experience combined with working with a team is the best way to learn," adds Dr. Walls.

Our ETM students also competed on a national basis against more than 1000 teams at other business and engineering schools. We are delighted to announce that EB's ETM Capstone teams ranked very well in comparison to teams at other schools. One of our Capstone teams placed in the top 5 percent in the nationwide competition.

IFP Students Return from Study in France

This fall, the Division and IFP welcomed back seven second-year students from France and said hello to four new students who joined the program. The seven returnees are again polishing their English skills after eight months of speaking French. Five of the seven will graduate from the CSM/IFP Joint International Degree Program in December. Each will receive a M.S. degree in Mineral Economics and a diploma in Petroleum Economics and Management. Two of the seven students will be continuing at CSM for their

Ph.D.s. Professor Carol Dahl, Director CSM/IFP Petroleum Economics and Management, is happy to report that most of the December graduates already have jobs. Graduates from this program are in high demand and employers need to move quickly to hire from this program.

Daniela Lavrador, one of the four new IFP students joining the program is from Portugal, a new country for IFP. Other new IFP students include Fabio Serrano, Mihau Kanai, and Elfije Salihu.

Pics and Pans



Spring 2002 "E Days." Behind the goggles and the cream pie is Professor Luis Sosa

Division Welcomes Industry Leaders' Guidance

The Division welcomed two external visiting committees to review and evaluate its programs in 2001-2002.

The Division was visited in March by the ETM Industry Advisory Board. Including an ETM Industry Advisory Board was part of the original concept of the ETM program. It was felt that an outside advisory board consisting of senior-level managers from information services, telecommunications, computer manufacturing, energy, and other technical fields would be invaluable in guiding the structure and content of the ETM program.

Current Board Members include Jerome Broussard, a major contributor to the ETM program; Steve Cooper, IHS Energy Group; Greg Floerke, Williams Communications Group, Inc.; Rob Hagens, Level 3 Communications; Tom Holloran, Tanning Technology; Bruce Henry, Board Member; R. Craig Murphy, Sabre, Inc.; Peter Pazmany, Sun Microsystems; and Ed Witt, National Renewable Energy Laboratory.



ETM Industry Advisory Board Lunch Meeting at Coolbaugh House

In April, the Division welcomed the EB Visiting Committee. Visiting committees for each academic unit are created by the CSM Board of Trustees. The purpose of each committee is to act as a voice and agent for continuous improvement through periodic review of academic programs, research activities, and faculty and student development. The committees consist of prominent alumni, senior industry and government leaders, and acclaimed academic scholars or administrators. At the conclusion of each visitation, the members prepare a report on their recommendations for each department.

The members of the EB Visiting Committee include Abdulaziz S. Al-Jarbou, Industrial Consultant; Alan D. Bell, Ernst & Young; Bill Diggons, Oil and Gas Performance Advisors; Michelle Foss, University of Houston; David Humphreys, Rio Tinto Plc; George W. Off, formerly with Catalina Marketing Corp.; Jack Parry, Western Mining Corp., Ltd.; Joseph Robertson, MG Metal and Commodity Corp., and Beth Robinson, Consultant. The Board meets with the Division of Economic and Business every year.



Remembering Xiaolin.....

We were all saddened by the tragic death in January of Xiaolin Zhang, a Mineral Economics graduate student. Xiaolin was from China and was so excited to be at CSM. To be able to study in the United States was a fulfillment of a long time dream. She struggled and overcame tremendous odds to be able to come to the United States and achieve her goal of a graduate degree in economics.

We all remember her for all her questions and curiosity. Xiaolin wanted to know everything! She is missed by faculty and students alike.



Undergraduate Curriculum Reform

Beginning in Fall 2002, the Division's B.S. degree in Economics took on a new look. Students will now be able to specialize in either Global Business or Technology, the latter being a new specialization that is in keeping with Mines' increasing focus on technology. Furthermore, in response to increasing student numbers and high demand for economics electives by non-majors, the Division has added an additional five economics elective courses at the junior and senior level—History of Economic Thought, Personal Finance, Economics and Technology, Business Strategy, and Economic Forecasting.

Other changes include the addition of relevant humanities and social science courses in lieu of certain free electives, a

better streaming of prerequisites with all 400-level courses building on either Intermediate Microeconomics or Intermediate Macroeconomics, an increased economics core content, and increased depth in the area of economic and mathematical modeling. While the total degree hour requirements remain unchanged, this change in mix adds increased exposure to economics and business courses and allows for a more comprehensive specialization in focused economics and business topics.

These program changes are the result of a year-long intensive review of the program by faculty within the Division. A poll of past graduates' opinions about the program was given serious consideration by the review committee. The changes

are intended to build on the quantitative strengths of the program and to fill out the initial, more limited version of the degree when it launched in 1995.

To date, the Division has awarded Economics Degrees to nearly 100 students. The Division can also boast that placement rates and salary offers meet and often exceed the CSM average.

Recent Placements

*ADA Environmental Solutions,
American Airlines, Dow Chemical
USA, Schlumberger, ExxonMobil*

Average Starting Salary— \$44,882

Howie Wins MEMS Student Paper Award

Congratulations to Peter Howie, a recent Ph.D., who won the "Best Student Paper Award" from the Mineral Economics and Management Society (MEMS) for his research paper "Subsidization and Market Power in the Copper Industry: Evidence From the 20th Century" presented at the 2002 meeting of MEMS in Montreal, Canada. For his accomplishment, Howie received an engraved plaque and prize money of \$1000. Howie

was supervised by Dr. John Tilton.

Howie's research paper analyzed the long-run price of copper for the presence of market power and other market irregularities. It develops a varying-parameter simultaneous-equations econometrics model that is used to estimate annual

market conduct parameters for copper from 1900 to 1997. The model suggests evidence of subsidization occurring during 1916-26 and 1961-73 as well

as possible market power occurring during the first decade of the 1900s.

MEMS is a professional forum for academic, industrial, private, and government specialists interested in mineral economics and materials management. The society's membership includes many of the world's leading mineral economics experts. Rod Eggert, Division Director, and Professor Graham Davis also attended the 2002 MEMS Meeting.

*For more information about
MEMS, see its website at:
<http://www.minecon.com>.*

Summer Field Session

Nineteen economics majors completed the economics field session this summer. The economics field session provides majors with a chance to solve a real world economics or business problem of their own choosing using the analytic tools that they have learned in their classes. In many cases, students use the field session to add depth to their knowledge base, since classroom exercises often can only superficially address many topics. Students also obtain reinforcement in report preparation and writing skills.

We are seeing an increasing number of students tackle entrepreneurial project ideas, such as real estate investment, franchising, and internet start-ups. Other popular project this summer involved the economic analysis of oil field development and production, in this case reflecting the interests of our double majors in petroleum engineering and economics. In these and other cases, the analysis directly serves the Mines' community, providing faculty-monitored analysis that guides private and non-profit entities in their economic and financial decision making.

For more information on the economics summer field session, email Graham Davis at gdavis@mines.edu.



Student News, Awards, & Achievements

Several B.S. and M.S. graduates received awards at graduation for their outstanding achievements. The winners were chosen by the faculty based on student scholarship and their overall contribution to the Division. Dr. Eggert, Division Director, presented each winner with a plaque and check. In addition, their names were added to the permanent plaques which proudly hang on the "wall of distinction" on the 3rd floor of Engineering Hall. Jason Rurup was winner of the William Jesse Coulter Outstanding Senior Award. Jason Lerner received the William Jesse Coulter Award in Mineral Economics. Eva Maria Gomez was granted the Hubert and Sarah Risser Award in Mineral Economics. Mike Megorden and Cynthia O'Neil were in a dead heat for the Broussard Award for ETM; consequently two awards were given.



Students receiving awards left to right are Eva Maria Gomez, Jason Lerner, and Cynthia O'Neil.



Undergrad Investment Club Wins Best New Club Award

The Mines Investment Club was the brainchild of two sophomores, Kimberly Huelson and Britta Eustice. They had taken EBGN 321, Engineering Economics, enjoyed the class and wanted to further understand the market. Kimberly and Britta did an outstanding job creating the club, affectionately referred to as "MIC." Others who assisted in getting the club up and running included Mike Martinez-Schiferl, Ross Serven, and Josh Maida. All their efforts were rewarded

by MIC being named "Outstanding New Organization" on campus.

The purpose of the club is to learn more about the stock market and investing. The club enrolled in an Internet-based investment game. Several investment teams were created to invest "play money." Lectures presented by John Stermole and other club members included textbook reviews, introductions to terminology, reviewing market move-

ments, and other pertinent market related news. In addition, the club reviewed investment game positions, discussed strategies, and usually had something to munch on.

Josh Maida headed a program offering a campus-wide seminar on what to look for in compensation programs. Maida emphasized 401Ks and the differences in compensation packages. The club is already involved in its fall activities.

Alumni Corner

Gys Wessels (Ph.D. '89) is a Principal at Deloitte Consulting, based in South Africa. He recently visited CSM while traveling in the US and gave a talk on one of his projects. He focuses on strategy consulting. After he graduated, he also qualified as a Chartered Accountant (SA). He was part of a team awarded the Franz Edelman prize from INFORMS. He received a commendation from the Chief of the South African Army, and twice the Tom Rozwadowski award from the Operations Research Society of South Africa. He can be con-

tacted at gwessels@dc.com. **Marcela Rosas** (M.S. ME '01) landed a position as Research Associate for Cambridge Energy Research Associates in Boston, Mass. **Peter Howie** (Ph.D. '02) is a visiting professor at the University of Montana at Missoula for the 2002-03 school year. He is teaching econometrics and microeconomics to undergraduate seniors and first-year master's students. **Michael Megorden** (M.S. ETM '02) is working as a Production Engineer for Perenco S.A., an oil company in Gabon, Africa. Michael is enjoying his job, but

says that learning to speak French is a challenge. Undergrad **Brooke Mitchell** (B.S. '02) is now in the Master's of Economics program at Boston University.

Alumni, we would like to hear from you. What are you doing? For whom do you work? In what country do you live? Send an email with your news to csanford@mines.edu.

Faculty News

Sammy Sosa is not the only Sosa to hit multiple home runs. Our very own **Luis Sosa**, a popular EB professor, won not one, not two, but three awards at the picnic following the Spring 2002 graduation. Sosa was voted by the EB students for "Engineering Technology Management Excellence in Teaching," "Mineral Economics Excellence in Teaching," and "Economics and Business Excellence in Teaching." Way to go, Luis!!!



John Stermole was voted Economics and Business "Most Outstanding Faculty" by the graduating seniors at CSM. Although not all his students initially shared his enthusiasm for the subject matter, his relevant and interesting presentation had most of his students enthusiastic by the end of the semester. In addition to his "Most Outstanding" award, Stermole was recently awarded the title of "Lecturer" at CSM. When he isn't busy entertaining his students, Stermole has been presenting his seminar "Economic Evaluation and Investment Decision Methods" to the investing community in Germany and Venezuela. In addition to giving other seminars in the U.S., Stermole focused on completion of an Intranet-based continuing education format of the same course described above.



Alexandra Newman attended the Manufacturing and Service Operations Management conference at Cornell University in June. There, she and her co-authors presented "Optimal Stocking Policies for a Multi-Echelon Repairable Parts Logistics System" (with Dr. Lee Ewing) and "Day-of-Week Pricing for Express Package Delivery Services" (with Prof. Candace Yano, UC-Berkeley). Newman has been working on a production scheduling model for LKAB's Kiruna Mine with Prof. Mark Kuchta (CSM Mining Engineering) and Mining Engineering Ph.D. candidate Erkan Topal.



On the running front, in May, Newman finished second in a half-marathon in Schmiedefeld, Germany. Unfortunately for TV viewers, they had to endure a post-race interview with her.

In January, **James Otto**, Director of the Institute for Global Resources and Management, was in London to meet the new head of the Economics and Legal Advisory Services Group of the Commonwealth Secretariat. They discussed the role of multi-lateral agencies in the mineral sector. In February, he completed, with Ph.D. candidate Christopher Duncan, a research project for the Metal Mining Agency of Japan titled "A Scoping Study to Identify Metals Whose Demand May Be Impacted by Fuel Cell Usage." In



March, he traveled to Peru to give talks on mining law and taxation to the Ministry of Economics and Finance and the Ministry of Mines and Energy. He was joined by EB alum, Maria Chappuis (M. S. MinEc, 1983), who is now special advisor to the Minister of Mines. Also in March, he delivered the keynote address to the World Mine Minister's Forum in Toronto. His talk titled "Creating a Positive Investment Climate" was heard by representatives from more than 60 nations at the World Bank organized event. During June, his new book co-authored with former professor and department head John Cordes, titled "The Regulation of Mineral Enterprises: A Global Perspective on Economics, Law and Policy" was released by the publisher. In June, Otto was invited to give an opening session talk on "Fiscal Decentralization and Mining Taxation" at the World Bank/IFC workshop on Local Management of Mineral Wealth.

Graham Davis published an article, "The Impact of Volatility on Firms Holding Growth Options" in *The Engineering Economist* 47.2 (2002): 213-231. The paper demonstrates that market volatility is not always welcomed by firms holding growth options. Another Davis paper "Evaluating Mining Projects under Sustainability Constraints," was published on the Web at <http://www.gmiconference.com/resource.html>, a resource center for the Global Mining Initiative Conference, May 2002, Toronto, Canada. Davis also wrote a Monte Carlo model of mine valuation, with Alpay Sergi, for Decisioneering's Web-based library. The model, available at <http://www.crystalball.com/models/mining.html>, was highlighted in *The Decisioneering Newsletter*, Issue 84, June 6, 2002. In addition, Davis was a panelist at the DOE's invitation-only conference, "Estimating the Benefits of Government-Sponsored Energy R&D," Washington, DC, March 2002.



EB Participates In World Bank Effort

The Division of Economics and Business was invited to participate in the June 10-11, 2002, meeting on Local Management of Mineral Wealth hosted by the World Bank and the International Finance Corporation. The goal of this high-profile Washington, D.C. event was to provide officers from the World Bank Group (WBG) the opportunity to meet with experts and stakeholders who are involved with the development of mines that impact local communities and to provide for a mutual exchange of information and ideas. Meeting participants included 44 World Bank Group staff and invited guests from more than 30 nations. The Division, represented by Division Director Rod Eggert and Professor Jim Otto, was the only academic institution participating.

The World Bank Group plays a leading role in providing minerals sector advice, services, and lending to national governments. Worldwide, there is a trend for governments to decentralize regulatory and fiscal systems, and this process is fraught with challenges. By examining specific examples and talking with stakeholders the WBG is better able to identify and recommend "best practices." The Division of

Economics and Business was well positioned to offer advice about this reform process and best practices.

At the WBG workshop Otto was asked to deliver a talk at the opening session titled "Tax Instruments: The Local Dimension of Mineral Wealth." The paper builds on previous work published by the DEB and IGRPM on mining taxation, including the now standard reference book *Global Mining Taxation Comparative Study*. This book, co-written by Otto, Cordes, and Division of Economics and Business M.S. graduates, Natalie Smith and Maria Louisa Batarseh, has been distributed by the United Nations and the World Bank to more than 150 national governments. The book can be ordered by contacting Otto in the Division at jmotto@mines.edu.

It is with great pride that the Division can now acknowledge its recognition worldwide as a center of excellence in the rapidly growing field of sustainable development.



Rod Eggert, Division Director



Jim Otto, Research Professor and Director, Institute for Global Resource Policy

Technology & Entrepreneurship Seminar Series

CSM's Office of Technology Transfer, together with the Bard Center for Entrepreneurship Development at the University of Colorado at Denver, sponsored a fall seminar series that focused on the business and strategic principles associated with entrepreneurship and technology. The series of presentations and discussions was designed to explore the technical elements and driving forces of successful entrepreneurship in the 21st century. The seminars were followed by a reception, giving the participants an opportunity to discuss questions and issues with the presenter in person.

The first presenter was Dr. Gary Colbert, Bard Center Academic Director, who spoke on "New Venture Creation: The Intersection of Technology and Entrepreneurship." He examined the characteristics of successful entrepreneurs and the impact of entrepreneurship activities on individuals and society.

Dr. Patrick McCarthy, a Professor of Chemistry at CSM, presented "Inventing, Patenting & Commercialization: The Big Picture." MacCarthy has been awarded 13 U.S. patents and four foreign patents. Several of his inventions have been licensed to

manufacturers and marketed worldwide.

The last speaker in the series was George W. Off, former Chairman of the Board of Catalina Marketing, who spoke on "Catalina Marketing: and Entrepreneurial Growth Story." Mr. Off discussed the start up, rapid growth, IPO, and expansion of Catalina Marketing Corporation. Founded in 1983, Catalina Marketing provides a technology-based marketing service to the consumer package goods industry.

For more than thirty-two years.....

The Division of Economics and Business at the Colorado School of Mines has prepared students to become leaders in industry and government. Today, the tradition remains stronger than ever.

EB Salutes the Spring 2002 Graduates!

Ph.D., Mineral Economics

Stephen Brochu

M.S., Mineral Economics

Gary Burgoyne
Joseph Furtado, Jr.
Lawrence Gale
Eva Maria Gomez Gamero
Durga Kar
Jason Lerner
Peter McKenzie
Eduardo J. Morillo
Carlos Roman Basurto
Daniel Shrimpton
Donald Sult

*Special Congratulations to
the 1st ETM Graduating
Class!*

M.S., Engineering and Technology Management

Byron Ballantyne
Janel Brooks
Michael Megorden
David Naibauer
Derick Ofori-Kuragu
Cynthia O'Neil
Anthony Staley
Lisa Wehmeyer
Mathew White

B.S., Economics

Mariah Forte
Christopher Hammitt
Kathryn Heidrich
John Herring
Angela Holm
Marshall Jung
Dustin Menger
Barry Miller
Corey Mudd
Jack Pecoraro
Jason Rurup
Daniel Seeds
Joseph Selby
Casey Whiteman



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