# Exploration in emerging environments

There has been a dearth of success in finding giant ore deposits during this six year exploration bull market. The junior resource sector is a boom and bust business driven largely by the commodities cycle and especially the price of gold. The current bull cycle started in mid-2003 when an ounce of gold went over $300 and stuck.

Some may argue that we are no longer in a bull market but I will point out that about $5 billion has been raised via the Toronto markets for exploration, development, and mining projects since the beginning of the year. Most of that money will go into the ground during the next two years, delineating and developing new deposits.

However, I can think of only two giant grassroots discoveries in the present cycle: the Fruta del Norte gold-silver deposit in southeast Ecuador and the Navidad lead-silver deposit in Patagonia, Argentina. Both discoveries occurred in underexplored regions with known mineral potential. The first was sold to a major during a government-mandated mining moratorium and remains in an inferred resource category. The second was awarded in litigation to another junior because of breach of confidentiality. Navidad is undergoing delineation drilling but currently is burdened by a Chubut province ban on open-pit mining. There are other discoveries that may eventually prove to be major deposits. The Long Canyon gold discovery in eastern Nevada comes to mind but will require much additional drilling to determine its size potential.

Our rate of new discovery in this boom has been abysmal. For the ten's of billions of venture capital dollars poured into exploration projects, a commensurate measure of wealth has not been created.

Why is that? I'll provide some historical background on Canadian junior exploration before addressing the question.

The junior resource sector traditionally has focused on greenfields exploration. In past booms, many juniors explored in the hinterlands, a very few made big discoveries and sold out to mining companies, and the great majority failed and became shells until the 'next big thing' in the venture capital markets came along. The single exit strategy was to sell to a major miner. Most simply mined the stock market since few found a deposit worthy of mining in the ground.

Greenfields exploration programs were largely confined to North America, specifically Canada and the US. No junior went south of the border to explore because no foreign entity could control a Mexican corporation. Expropriation and nationalisation of mining operations in the 1970s in countries such as Chile and Peru discouraged majors and juniors from exploring in those endowed places. Leftist governments, civil wars, guerillas, and terrorists made Central America and parts of South America off-limits in the 1980's. Other continents were not on any junior's radar screen. There was still plenty of blue sky in Canada and the western US. The Aussie juniors stayed put on their big island, too.

This provincial outlook changed during the exploration boom of 1991-1997 and was driven almost exclusively by geopolitics. Mexico's mining law changed in 1992 allowing foreign ownership. Democracy came to western South America and terrorist organisations were debilitated. The Soviet Union disintegrated and Russia and the mineral-rich 'Stans' became exploration destinations. Civil wars and internal unrest abated in parts of Central America. Juniors explored in far-flung places throughout the world including former communist and fascist countries of Southeast Asia and new nations in southern and western Africa.

Several major greenfields discoveries were made by junior resource companies. Examples included world class diamond mines in the Northwest Territories, a giant nickel-copper-PGE mine in Labrador, and a large gold mine in Peru. Significant discoveries were made by juniors in eastern Russia, Indonesia, western Africa, Mexico, and South America.

Contributing factors to the abrupt end of the bull market in 1998 included mineral tenure problems in various countries, a coup in Indonesia, organised crime issues in Russia and some CIS countries, civil wars and economic instability in others, and worldwide economic downturn as globalisation failed in Southeast Asia.

Western geologists had made numerous discoveries in many countries that were explored for the first time in the 1990s. When the cycle of low commodity prices ensued, most of the newly discovered deposits remained undeveloped and smaller mines that had been put in production soon failed. However, during that time that ended so badly for our business, the entire world was the proverbial oyster of the exploration geologist. Important logistical support, infrastructure, and both public and private contacts for mineral exploration and development had been established around the globe. ▶

**Editor and Publisher**
John Chadwick
Email: john@im-mining.com

**Associate Editor**
Chris Cann
Email: chris@im-mining.com

**Assistant Editor**
Daniel Gleeson
Email: daniel@im-mining.com



**Editorial Enquiries:**
Tel: +44 (0)1442 870 829
Fax +44 (0)1442 870 617

**Advertising Sales:**
Phil Playle
Email: phil@im-mining.com
+44 1442 87 77 77

**Advertising Production**
Emma Smith
Email: emma@im-mining.com

**Publishing Consultant**
Robin Peach

**Design & Production**
Trevor Sheldon
Email: sheldonmann@gmail.com

**Website:**
www.im-mining.com

**Annual Subscription Enquiries:**
Emma Smith
Email: emma@im-mining.com

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This exploration boom is fundamentally different than all that came before and contributing reasons for fewer major greenfields discoveries are many:

- Stock market regulations resulting from the scams of the late 1990s have led to quality control of data and strict requirements for public posting of material news
- 43-101 regulations for classification of resources and reserves resulted in investor, newsletter, and analyst demand for junior companies to fast track their flagship projects to resource definition and economic studies as rapidly as possible
- The internet has produced a transparency of corporate reporting and information, company and insider transactions, and exploration program results with a concomitant increase in corporate responsibility and investor savvy
- Most regions of the world with giant mineral endowments have entered a mature phase of exploration under post-mineral cover or at increasing depth. Exploration, development, and mining are more difficult and expensive with lowered chances of success in these areas
- Much of the Earth now has been trod many times by geologists and most outcropping deposits have been discovered
- Because the boom ended so abruptly in 1997-98, many significant mineral occurrences that had been discovered over that six year period were not drilled and killed. They were only partially defined, delineated, developed, or mined and remained viable projects
- Geologists and engineers who had worked for major mining companies were laid off in the late 1990s. In the 2000s, they moved to the junior resource sector with knowledge and experience in the lesser explored parts of the Earth. Their contacts with former employers led to acquisition of many advanced projects deemed too small or marginally economic by the majors
- Technological advances in bulk mining methods and metallurgical processing combined with high commodities prices have turned previous mineral resources into ore reserves.

Because of these many factors, most juniors have focused their equity dollars on brownfields instead of the greenfields exploration role that juniors traditionally have filled.

Giant ore deposits are found by field geologists in greenfields exploration programs. The recent emphasis in the junior resource sector on advancing flagship projects to development and production decisions has resulted in few and fewer dollars budgeted for generative greenfields exploration programs.

Fewer dollars means fewer geologists walking fewer kilometres, taking fewer samples, and drilling fewer holes resulting in fewer major ore discoveries. This is partly by necessity: There just aren't that many prospective places left on Earth where some geologist has not traversed. Simply put: Geologists are running out of virgin geological terrrane that is prospective for discovery of giant outcropping orebodies.

That said, there are still places on the planet that are under explored and under developed. These areas may be called emerging environments and include countries that largely were left untouched during the boom of 1991-1997, most often because of unfavourable geopolitical conditions.

A prospective emerging environment should have, first and foremost, requisite geological setting favourable for formation of major ore deposits. It should be on a tectonic plate boundary, structural fold belt, or suture zone that has known economic mineral occurrences in country or major ore deposits in adjacent countries with the same geological setting.

Exploring in emerging environments is attractive for two reasons:

- Major outcropping ore deposits are more likely to be found by simple 'boot leather and drilling'
- Recent technological advances in remote sensing techniques such as satellite imagery and alteration mapping, regional geochemical exploration, and regional geophysical data processing have improved prospecting efficiency with better and more focused target selection prior to field examination
- Advanced projects, deposits, or past-producing mines can be acquired and developed in fast-track fashion
- The first company to invest in an emerging country often can acquire the best and most advanced projects, deposits, and mines that were scuttled in the past because of geopolitical events, bureaucracy, mismanagement, and corruption, demise of a centrally planned economy, and/or lack of understanding of capitalistic principles.

Emerging environments with recent exploration success stories including Armenia, Haiti, Colombia, Indonesia, and Burkina Faso. Exploration in other emerging countries has been technically successful but development of economic mines has been derailed.

For instance, a junior resource company defined the worldclass copper-gold porphyry at Oyu Tolgoi, Mongolia in the early 2000s. A subsequent windfall profits tax adopted by the government has left successful mine development and project economics in serious doubt not only for this project but all exploration and mine development in country. Mongolia is now regarded as an environment with unacceptable geopolitical risk.

Permitting and development have been delayed on the previously mentioned worldclass discoveries in Ecuador and Argentina.

These cases illustrate the difficulties and potential pitfalls of working in emerging environments. Geopolitical risk factors can and will change rapidly and unpredictably. However, venture capital will always flow where perceived risk is lowest and possible reward is highest.

Exploration in emerging environments balances high risk with high reward. Risk can be mitigated by an in-depth knowledge of a country's geopolitical situation, international standing, government structure, socio-economic environment, and a commitment to best practices exploration and sustainable development with a local participating partner.

Much like the individual considering a company for investment, a junior resource company considering greenfields exploration in emerging environments must do thorough due diligence. It must choose countries where deposits can be found, mines can be developed, and profits can be returned to shareholders. The potential reward of being the first field geologist exploring in virgin geological terrane is discovery of a world class orebody. And that's enough to excite any Mercenary Geologist.

**Michael S. "Mickey" Fulp**
The Mercenary Geologist
Mickey@MercenaryGeologist.com