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THE GROWING STEALTH BULL FOR URANIUM

The most - followed stories concerning energy of the recent past have been of oversupply, price weakness and a general resignation that things won't get better any time soon.



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"One billion people will enter the global consuming class by 2025. They will have incomes high enough to classify them as significant consumers of goods and services..."





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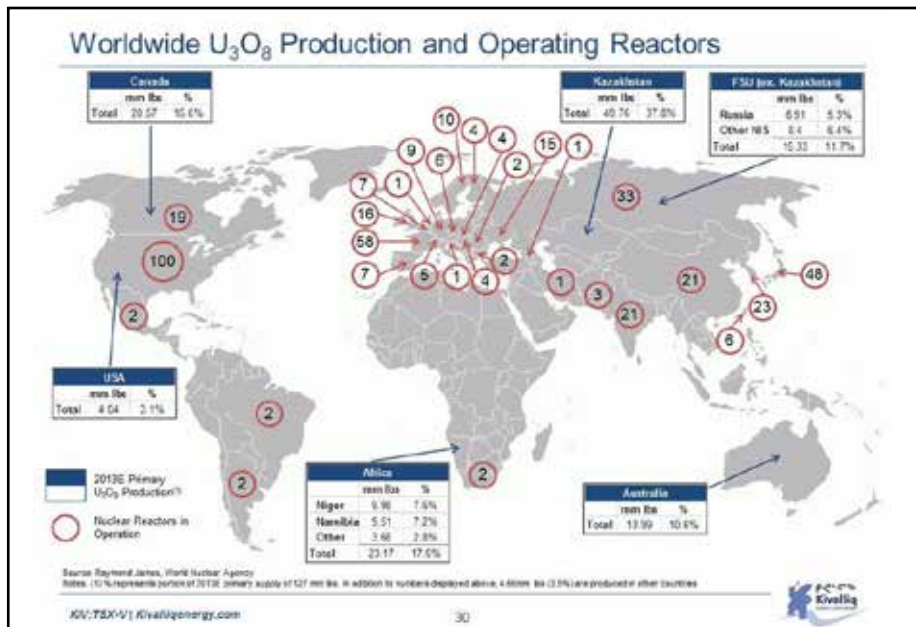
THE GROWING STEALTH BULL MARKET FOR URANIUM

By Chris Temple

The most - followed stories concerning energy of the recent past have been of oversupply, price weakness and a general resignation that things won't get better any time soon. Among other things, we

have simultaneously heard it reported that global stockpiles of crude oil are at a record three billion barrels. As for natural gas--arguably in an even worse near-term overcapacity situation--in the U.S. alone there is a record four trillion cubic feet in storage.

As usually happens, misery in the oil patch has worked its way into pretty much every energy sub-set. But in the case of uranium, this is not deserved; and the continued weakness here as well is arguably setting up a generational opportunity for investors!



To give you a pictorial overview of the global picture where nuclear power is concerned, I have included here a chart from a recent Kivalliq Energy (TSXV-KIV; OTC-KVLQF) presentation which details 1. the number of operating nuclear reactors in the world and 2. a breakdown of where present global uranium production comes from. This is, by and large, a picture of how it has chiefly been developed economies that have accounted for the overwhelming majority of nuclear power generation since its advent. The U.S. paces the globe with 100 operating reactors. Europe's number is comparable, with France leading the way (that nation, in fact, gets the majority of its mass power generation from nuclear energy.)

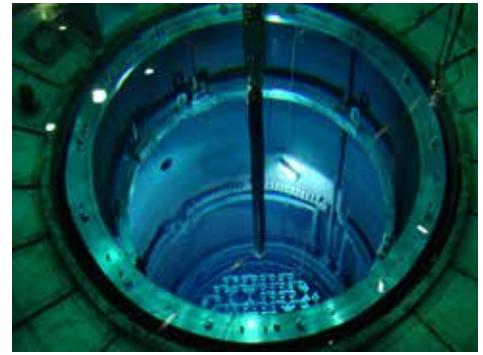
As a result of the 2011 Fukushima accident, Japan--which had been one of the big consumers of uranium as



well-closed down 56 reactors. This interrupted a big chunk of uranium demand; some 15% of the global total. And that was at a time when it looked as if the supply/demand imbalance in the world would tilt in favor of producers. Fukushima indeed set back the long-term uranium bull by a few years!

Now, though, the snail's pace process of Japan restarting its reactors seems to be picking up. The country's energy minister has admitted that nuclear power generation will need to account for 20% + of Japan's energy mix by 2030 for both environmental and economic reasons.

A key milestone in the process of the country starting back up its reactors has just come about. Back in July, fuel loading began at the Kyushu Electric Power Co.'s Sendai 1 plant (in the photo above you see fuel rods being put in place in one reactor.) By the end of



2016, it's presently expected that half a dozen or so more Japanese reactors will be brought back on line, as the laborious process of safety reviews, legal measures and both national and local government approvals are met.

Elsewhere in the developed world, existing nuclear energy production is being augmented. Recently, Chinese

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Indeed, China will likely prove to be as big an incremental driver in future uranium demand as it was in demand for iron ore, oil, coal, copper and more in its massive infrastructure spending boom of the last dozen or so years.

leader Xi Jinping traveled to the U.K. to galvanize China's role in both building and financing a new plant. A "new nuclear dawn" was declared for Great Britain; a country where, notably, even environmentalists have embraced the relative benefits of clean nuclear energy as everyone grapples with reducing greenhouse gas emissions. And here in the U.S. where I live, we have just seen the first new reactor come on line in over two decades: the Tennessee Valley Authority's Watts Bar facility. Several other reactors are under construction as well as there is widespread support from both the Obama Administration and Congressional Republicans for turning toward more nuclear energy.

But the stealth bull market developing in uranium is most interestingly a story of how some developing nations are embracing nuclear power; many of them crafting multi-decade plans to build out this infrastructure. Many emerging nations, indeed, are looking to nuclear energy to provide a far greater portion of their overall energy needs than what is common in the Western/developed nations, where early energy infrastructure focused on fossil fuels. And this is setting the uranium price--at a recent spot level of around \$36/pound--for a multi-year run to at least double that level in the next three to five years; perhaps sooner, if nervous consumers start a mad scramble to tie up uranium reserves (more on this at my conclusion.)

Russian President Vladimir Putin and India's P.M.



Narendra Modi after their deal

China will be the country long-term that builds the most nuclear power generation capacity

In case you have not followed the numerous such announcements of many months' time now, Russia--the nation with the most advanced nuclear power generation technology on the planet--has been signing major long-term deals left and right to help nations with their nuclear power programs.

The nation, usually through its big national nuclear energy company Rosatom, has signed multi-decade deals with India, China, Turkey, Bangladesh, Saudi Arabia and other nations (you can learn more about Rosatom, together with the amazing advances in

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power generation and reactor technology, at http://www.rosatom.ru/en/nuclear_industry/russian_nuclear_industry/)

Of course, all these future reactors will need uranium to feed them. This realization has helped to firm up the spot price of the fuel after it bottomed in the upper \$20's per pound, and make at least a few parties realize that the recent window of low prices will be closing. Among other recent deals, Indian Prime Minister Narendra Modi, on an April trip to Canada, signed a \$350 million uranium supply deal with that country's big producer, Cameco. China is also aggressively jockeying to see where it can tie up future supplies, as that nation becomes more aggressive as well in laying the foundation for a big nuclear power build-out.

Indeed, China will likely prove to be as big an incremental driver in future uranium demand as it was in demand for iron ore, oil, coal, copper and more in its massive infrastructure spending boom of the last dozen or so years. And foreign investors smell the opportunity, even if U.S. and some other developed market investors continue to yawn.

It was breathtaking to read of the demand this summer for the I.P.O. of



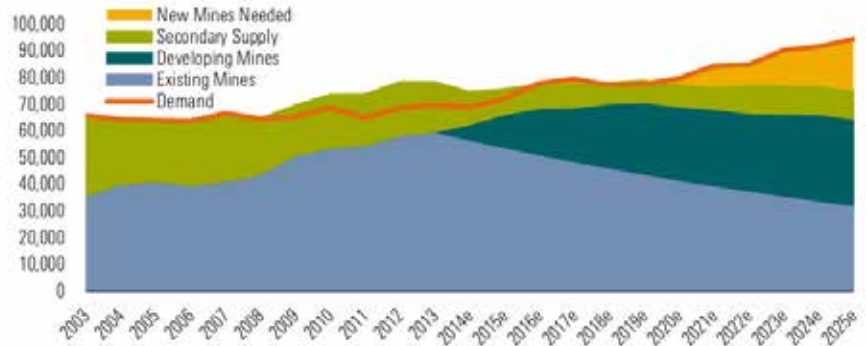
China National Nuclear Power Company, that country's second largest atomic power operator. As Ye Xie and Bonnie Cao of Bloomberg Business reported in a June 4 article, the company was able to lock up an astonishing 1.69 trillion yuan (\$273 billion) in bids for its I.P.O., according to a company statement posted on the

this growth ahead, see <http://www.world-nuclear.org/info/Country-Profiles/Countries-A-F/China-Nuclear-Fuel-Cycle/>)

As the above chart reveals, we are on the edge of a shortage of uranium to meet the needs of the nuclear energy industry. Keep in mind that electric

Exhibit 4 New Mines (and Higher Prices) Will Be Needed to Meet Growing Reactor Requirements

Uranium Supply and Demand (tU)



Source: Nuclear Energy Agency, International Atomic Energy Agency, World Nuclear Association, World Bank, US DOE, BREE, Murringslar

Shanghai Stock Exchange's website. China Nuclear was seeking to raise only about \$2.2 billion.

Aside from India's expansion, China will be the country long-term that builds the most nuclear power generation capacity as it seeks to get away from the oil and coal-fired plants that have wrecked the country's environmental quality. And part of the multi-decade plan for the country is that it will be building its own mining industry up to focus more on uranium. However, the country acknowledges that only about a third of its needs will be met domestically. It will have to go to the spot market, or otherwise enter into long-term contracts, with uranium suppliers for another third.

And most intriguing is that China will reportedly get the remaining one-third of its uranium needs by buying companies/consortiums that produce it. (For more on

utilities typically enter multi-year supply contracts with the relative handful of uranium producers in the world. Many of them need to be renewed in 2016. And given that the price weakness of the last five years or so has significantly curtailed production of new uranium deposits--and a lot of exploration activity--there may not be enough uranium to go around soon.

Together with the building of new reactors the world over that will significantly augment uranium demand going forward, we are approaching a perfect storm for a new bull market in uranium. The benefit that YOU, dear reader, have right now is that by and large the markets are oblivious to this; so you are truly getting in on the ground floor at present levels for the best uranium-related companies out there!

The National Investor is making available a FREE copy of Chris Temple's more complete report on this sector. Simply e-mail chris@nationalinvestor.com for a copy.

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WHEN THE LAST SILVER AND GOLD BULL HAS SOLD OUT...

By David H. Smith

Bull market tops are signaled when so many investors have “joined the parade” that there’s no one left on the sidewalk to watch the festivities! As you might imagine, the direct opposite of this, is when the last person in the “parade” drops out to stand on the sidewalk. Well, folks, with respect to time, and in regard to the small number of people actually willing to buy physical precious metals’ and mining stocks, instead of coughing them up “at the market”, creating spike lows on the charts - we’re just about there.

Strangely enough, the Chinese get it (buying almost all of 2015’s newly-refined gold). The Indians get it (purchasing about 40% of the year’s global production of newly-mined silver). Somebody (J.P. Morgan, almost by itself, according to one noted analyst) or some collection of people - is buying so many American Silver Eagles that the U.S. Mint has run out of blanks, and had to stop selling them several times this year. That 2015 will set an all-time annual record since Eagles began their mint-run in 1986, looks to be pretty much in the bag. And Canadian Silver Maple Leafs are flying off the shelves in a similar manner.

It’s been estimated that 1% or less of all investors actually hold precious metals. If we can see premium spikes in junk silver and Silver Eagles like what took place in

September and October, what’s going to happen when another 1 or 2% of the crowd wakes up and starts building their own personal bullion stash? Richard Nachbar, at coinexpert.com has been tracking premiums or lack thereof on 90% US silver coins that trade as investments in a bag for almost 20 years. In the chart nearby, he shows graphically what happens when demand shifts into overdrive. Sure, premiums are now moving back to “normal”, but this writer would suggest that the spikes we’ve seen lately should be viewed not as

aberrations, but rather as a cautionary tale - a preview of coming attractions.

Bitcoin’s recent price explosion out of a quiet sideways formation should give pause to anyone who thinks he or she can wait around until the ducks have lined up and then purchase what they want at “affordable” prices. Mr. Market is not going to send everyone an email update with a departure schedule, so that we can all “back up the truck” and hop aboard. It didn’t with Bitcoin, and it’s not going to with the precious metals.

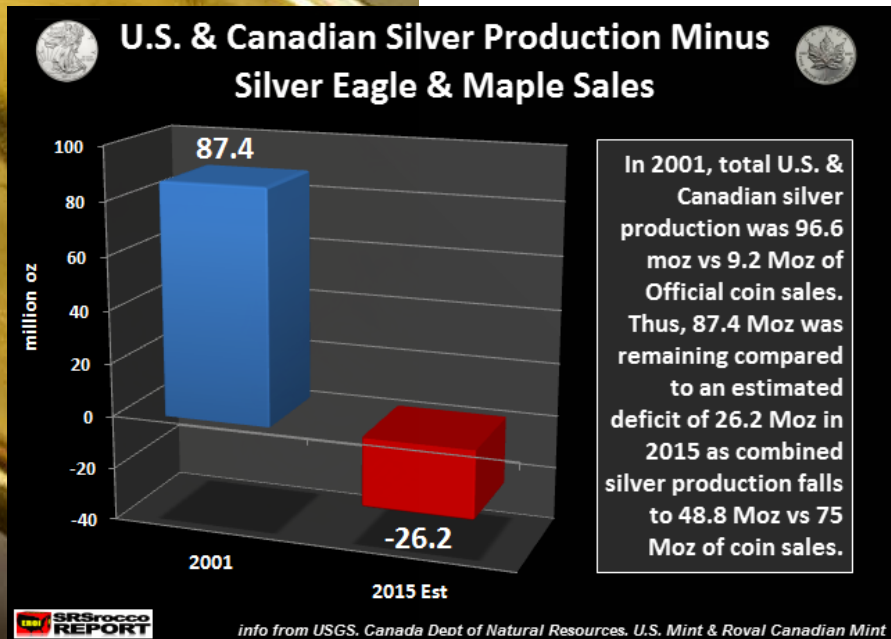


regardless of what the spin-doctors in the mainstream financial press say, things are not really better – there really isn't a recovery going on – so what's the solution?

The solution starts with a change that you can make on a personal basis. For most people, this means acquiring hard assets (especially gold and silver) that are totally outside the banking system.

If you're out of the room...

As the saying goes in Vancouver, B.C. where most of the world's mining deals are conducted, "If you're out of the room, you're out of the deal." So you can either add to your stash over the coming weeks and months at prevailing prices, or at the very least begin an accumulation plan with a portion of disposable income. Otherwise, when the big cyclical turn gets going - and it will - prepare to be standing on the street with a pocketful of "paper promises" destined to search unsuccessfully for an honest money safe harbor.

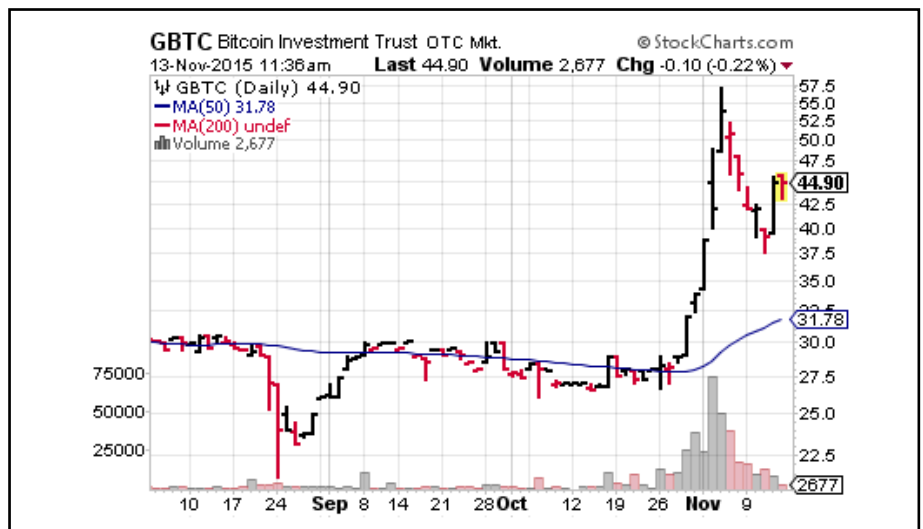


GBTC Bitcoin Investment Trust Daily

What we've learned from the 2008 price collapse, as well as every major drop of silver below implied support levels - from the cyclical top in 2011 until now - is that when the price drops, investors buy a lot more. As a result, premiums expand enough to "cancel out" a lot of the drop at the purchase counter. If silver declines from \$15 to \$12, do you really think you'll be able to get your position at "spot \$12"? No, more likely you'll pay \$14.25 because the bid-ask spread has widened, and because the premium that sellers are charging will eat up most of the price decline.

The tectonic silver plates of supply and demand are grinding together in a way that is leading to increased friction between investors and the metal they seek, a harbinger of much higher - and this time - sustained prices. Crashing base metals' quotes - the production of which yields close to 70% of annual silver production - has started to bite into the silver surplus of recent years, moving statistics into the deficit column. Steve St. Angelo has documented this swing, now on the verge of becoming a trend, in places as disparate as Mexico, Peru, Australia, Canada and the U.S. On the heels of this supply decline, is solid investor uptake in the bell-weather silver end-products of American Silver Eagles and Canadian Silver Maple Leafs.

But in the bigger picture, there's a lot more going on. If ever there was a time during



the last 40 years or so when all the ducks were lining up - massive paper printing around the globe, fiscal irresponsibility from Federal to local levels, underfunded pension planning, stock market and real estate speculation, a global economic malaise, conflagration in the Middle East, massive immigration/displacement into the EU, and the evolution of The Fourth Turning in America - this is it.

David Morgan at themorganreport.com has stated things in a way that is at once informative and empowering. He writes:

We're going to see more and more people wake up to the reality, that

Disclaimer: David H. Smith is Senior Analyst for <http://www.Silver-Investor.com> and a regular contributor to moneymetals.com He has investigated precious metals mines and exploration sites in Argentina, Chile, Bolivia, Mexico, China, Canada, and the U.S. He shares his findings and investment perspective with readers, media listeners, and audiences at North American investment conferences.



David O'Brien

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RAISING THE BAR, AGAIN...

By David O'Brien

Net Textured Nickel Core From Balmoral's Grasset Property

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Including 2.45% Ni over 17.6 metres *

44.97 Metres Grading 1.53% Ni **



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2013 & 2014 "Prospectors of the Year" - Quebec

* See August 18th, 2014 Release | ** See October 1st, 2014 Release



Our coverage of **Balmoral Resources Ltd. (BAR: TSX, BALMF: OTCQX)** as “a Canadian exploration and development company focused on creating shareholder value through the discovery, aggressive exploration and development of high-grade gold and base metal assets in the major mining district of Quebec, Canada” continues as, despite the overall market’s negative sentiment towards ‘the juniors’, management just keeps on planning their activities, and actually carrying out those plans. Bit of a rare bird these days.

Ideally suited as a mining jurisdiction is the province of Quebec, as it offers a virtually unparalleled combination of accessibility, exploration and mining expertise, legal and tenure certainty, mining culture and geological opportunity.

BAR’s two flagship projects are the Martiniere Gold Project, and the more recently discovered Grasset Nickel Project.

Raising the BAR, so to speak:

Balmoral’s exploration team have been recognized as the “Prospectors of the Year” for two consecutive years in the Province of Quebec for their Bug Lake and related gold discoveries on their Detour Gold Trend Project, as well as for their Grasset Nickel Discovery.

Balmoral is run by a veteran team of individuals including the core of the team that was responsible for the sale of West Timmins Mining, sold to Lake Shore Gold in 2009 for \$424 million dollars.

Sounds to us like the ‘exit strategy’ might just be another JV (although management would not be able to speak so freely about the possibilities); our 3rd-party positioning helps with our long-time established tradition of not ‘taking a position’ in the company... to maintain that credibility. Our guess is that potential partners are keeping an eye on the possibilities partially due to management’s past experience. That just makes sense. Do your own Due Dili, of course.

How high is the BAR, anyway?

Since none of the 7+mm Warrants and Stock Options are in the money, it seems there will be a ‘floor’ much higher than the \$0.48Cdn (\$0.36US) price the stock is currently maintaining. There are 3+mm \$0.60 Stock Options O/S dated for expiry in early 2019... so, how high is the BAR, anyway?

We last reported on the Grasset Nickel zone’s grades, increased size of the zones and contribution from other metals. These reports continued to come out in September, again advancing the value of that property and its size: See “BALMORAL REPORTS POSITIVE METALLURGICAL RESULTS FROM INITIAL TESTING OF H3 NI-SULPHIDE ZONE AT GRASSET, QUEBEC” <<http://www.balmoralresources.com/news>>, dated September 30th, 2015.



Martiniere Property Work

Since then, after completing a \$4.5+mm Flow-Through Financing in October, on November 3rd they released results on their Martiniere Gold Project: “BALMORAL CONFIRMS NEW GOLD-BEARING FAULT SYSTEM ON MARTINIERE PROPERTY, QUEBEC.”

Sounds like things are going according to plan... again.

*David O’Brien, is the owner of **Int’l Mining Research Inc.** which employs Media, Event and Online exposure, including **MineSnooper.com**. O’Brien also owns **W.I.T. Marketing**, an ad agency, and has been contributing articles to **The Prospector NEWS**, on demand. He owns no shares in the above companies.*

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COPPER WIRED FOR HIGHER PRICES

As a general rule, the most successful man in life is the man who has the best information.

My article titled 'Give It A Doubt' was about population growth, urbanization in developing countries and the one billion people predicted to join the consuming classes by 2025.

By Richard (Rick) Mills
Ahead of the Herd

"One billion people will enter the global consuming class by 2025. They will have incomes high enough to classify them as significant consumers of goods and services..." McKinsey Global Institute, Urban world: Cities and the rise of the consuming class.

Some of these new consumers are going to be Americans but the majority are in developing countries, they might not want to be Americans but they do want at least a modest piece of what we'll call the American lifestyle, the cell phones, flat screen TV's, a nicer apartment, a car or maybe a motorcycle, washer/dryer, a fridge, AC - the amenities of a modern society and all the necessary infrastructure that goes with a well functioning competitive modern economy.

Our stock data demonstrate that current technologies would require the entire copper and zinc ore resource in the lithosphere and perhaps that of platinum as well. Even a lower level of services could not be sustained worldwide

But what if all these new one billion consumers were to start consuming, over the next 12 years, just like an American? What's going to happen to the world's mineral resources if one billion more 'Americans' are added to the consuming class?

Let's look at copper - here's how much copper each of them would need to consume, per year, to live the American lifestyle...

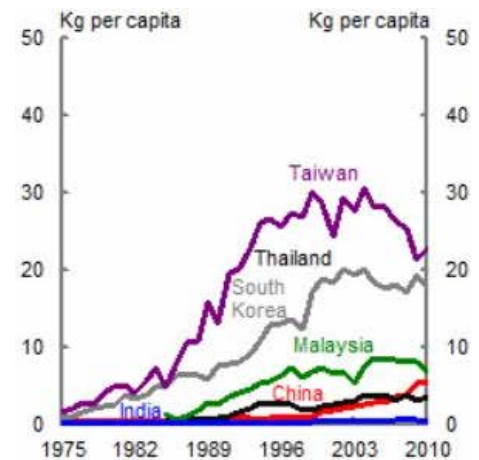
Per capita consumption of copper in the United States was 10 kilograms per

person 1965, the same in 1995. In Japan per capita consumption increased from 6 kilograms per person to 11 kilograms per person over the same time period. Copper consumption in Korea in 1965 was less than 1000 tons. By 1995, Korea's consumption of copper had reached 637,000 tons, or more than 14 kilograms per person.

In China, even after years of economic growth, per capita copper usage is about 5.4 kg. As China's populace urbanizes, builds up its infrastructure and becomes more of a consuming society, there's no reason to suspect Chinese copper consumption won't approach or even surpass U.S., Japanese and South Korean levels. There's 1.3 billion people in China, several billion more in developing countries - India, with its 1.2 billion people, is presently using 0.5 kg of copper per person. Africa, the fastest growing continent, has virtually no copper consumption per capita.

One billion new consumers by 2025. Can everyone who wants to live an American lifestyle? Can everyone everywhere have everything we in the developed parts of our world have?

"Concern about the extent of mineral resources arises when the stock of metal needed to provide the services enjoyed by the highly developed nations is compared with that needed to provide comparable services with existing technology to a large part of the world's population. Our



stock data demonstrate that current technologies would require the entire copper and zinc ore resource in the lithosphere and perhaps that of platinum as well. Even a lower level of services could not be sustained worldwide because a continuing supply of new metal is needed

to make up for inevitable losses in the recycling of the metal stock-in-use.

Substitution has the potential to ameliorate this situation, but one should not automatically assume that technology will produce a satisfactory substitute for every service at an affordable price and precisely when needed.

...anthropogenic and lithospheric stocks of at least some metals are becoming equivalent in magnitude, that world-wide



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President and CEO, Riverside Resources

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> demand continues to increase, and that the virgin stocks of several metals appear inadequate to sustain the modern “developed world” quality of life for all Earth’s peoples under contemporary technology...Do we really envision a developed world quality of life for all of the people of the planet...?” R. B. Gordon, M. Bertram, and T. E. Graedel, *Metal Stocks and Sustainability*

According to the International Monetary Fund (IMF) the consumption of metals typically grows together with income until real GDP per capita reaches about \$15,000–\$20,000 per capita (2005 international \$) as countries go through a period of industrialization and infrastructure construction.

are showing their age, here’s an example...

BHP Billiton just announced (Oct. 20th 2015) copper output dropped 3% yoy and 13% compared to last quarter because of declining grades at Escondida, the world’s largest copper mine. The company also said that despite plans to spend billions of dollars on operational improvements, including a \$3.4 billion water project, the anticipated 27% decline in grade would be only partially offset.

Mining is an extremely capital intensive business for two reasons. Firstly mining has a large, up front layout of construction capital called Capex - the costs associated with the development and construction of open-pit and underground mines. There are often other company built infrastructure assets like roads, railways,

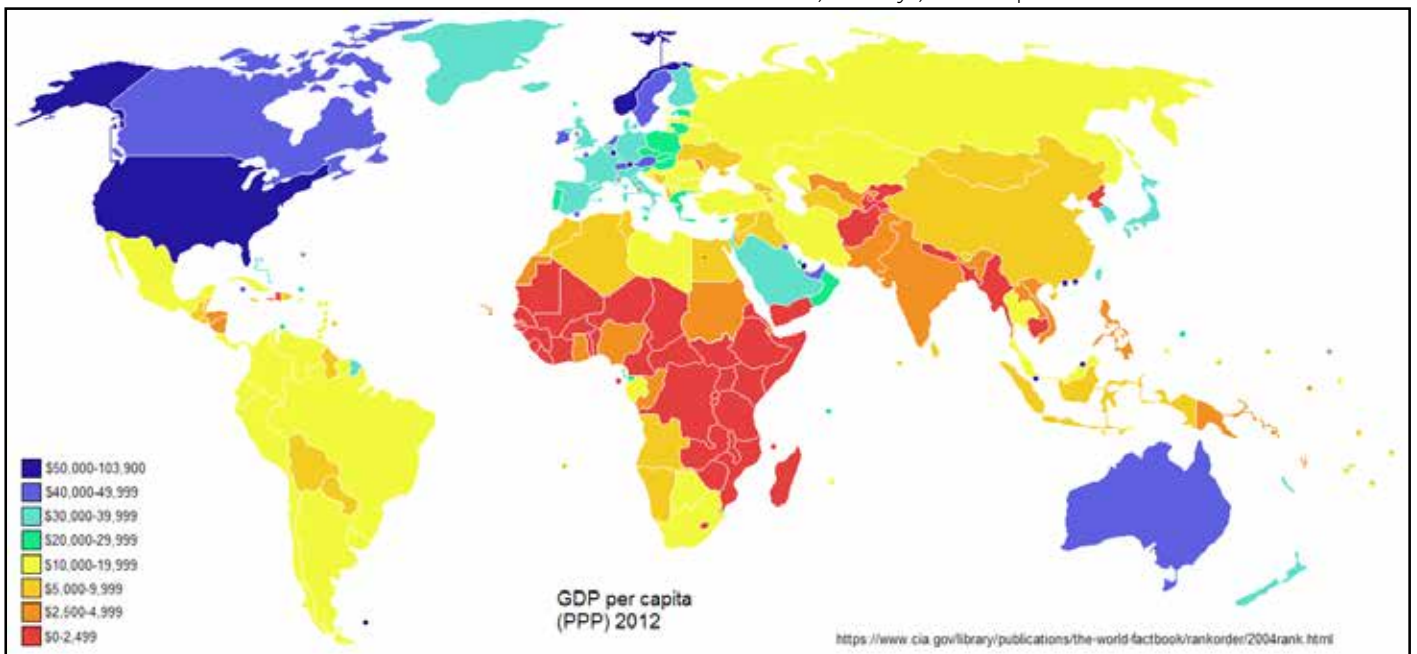
specifies just rents and royalties, payable to the state. It specifies exactly what the mining firm will build—a power plant, a water-supply system, a communications network—and how these things will be shared with the public.” *The New Bronze Age*, Tim Heffernan

The bottom line? It is becoming increasingly expensive to bring new mines on line and run them.

Disruption allowance

Copper mining is notorious for disruptions and analysts use a “disruption allowance” – 800,000 to 1,000,000 tonnes per annum.

According to ICBC Standard Bank, 2015 has seen a record 1.33m tonnes of mine disruptions and that does not include



A few country’s stand out as well below the IMF’s \$15,000.00:

- China – \$9,233
- Indonesia – \$4,956
- Philippines – \$4,410
- India – \$3,876
- Pakistan – \$2,891

Since they are still a considerable distance from the point where further increases in GDP per capita no longer increase copper consumption per person, China, Indonesia, the Philippines, India and Pakistan (and the other 113 out of 180 countries listed below the IMF’s 15,000 Int\$ cutoff) are likely to continue to add significantly to global demand for copper for some time to come.

Capex/opex costs escalating

Mining is getting more difficult. The low hanging fruit has been found and put into production long ago. And these deposits

bridges, power generating stations and seaports to facilitate extraction and shipping of ore and concentrate.

Capex costs are escalating because:

- Declining ore grades means a much larger relative scale of required mining and milling operations. As a rule grades are higher at current mining operations than at development stage projects – so costs are going to be higher to remove/process the same amount of ore.
- A growing proportion of mining projects are in remote areas of developing economies where there’s little to no existing infrastructure.

There is also continuously rising Opex, or operational expenditures, to consider. These are the day to day costs of operation; rubber tires, wages, fuel, camp costs for employees etc.

“A typical mining contract no longer

the latest power shortages (forcing production cutbacks) in Zambia.

Reasons for disruption in mining are numerous:

- Weather/Natural Disasters – Rain caused flooding or the opposite, drought causing water shortages, hurricanes, earthquakes (recent 8.3 magnitude earthquake in Chile).
- Technical problems – Commissioning delays, slower ramp-ups, 45% of supply growth is coming from greenfields projects.
- Power shortages – Chile, Zambia.
- Labor activity – Contract revisions, mine, rail and port strikes, environmental protests. Over 15% of production had labor contracts up for renewal in 2015.

Workers at some of the world's largest mines - Freeport McMoRan's Grasberg in Indonesia and BHP Billiton/Glencore's Antamina in Peru - were to renegotiate contracts in 2015. Bloomberg, in April, reported almost a 10th of global copper output was at risk of being lost due to labor disruptions in 2015 affecting 1.5 million metric tonnes or 8.2% of annual production.

- Older mines reaching end of mine-life - Falling grades, dirty concentrates (laced with arsenic).
- Declining price environment - Project deferrals, mothballing and downsizing of mine plans.
- Resource Nationalism - Resource nationalism is the tendency of people and governments to assert control, for strategic and economic reasons, over natural resources located on their territory ie. Indonesian ban on unrefined ore exports.

All these reasons are combining to tighten metal supply, push many markets into future deficits and are laying the groundwork for price gains.

Supply-side disruptions

There have been supply-side disruptions, including periods of drought followed by incessant rains and floods in Chile the world's largest copper miner. The

Chilean copper association has reduced its production targets for 2015 as a result of weather disruptions.

Grades are expected to fall at Escondida (the world's largest copper mine) as well as the Collahuasi JV between Anglo and Glencore.

Chilean state copper company Codelco is running into serious problems in maintaining production, let alone increasing it. Aging mines, high capex requirements and a \$21 billion funding shortfall by the Chilean government to fund Codelco's production plans is leaving Codelco wondering how to keep production flowing.

There have also been mining operation disruptions in Indonesia. The country imposed a ban on exports of unprocessed ores negatively impacting copper exports. Workers also blockaded PT Freeport's Grasberg Mine in Indonesia.

Clashes between police and protesters left four people dead at MMG's Las Bambas mine in Peru. Opposition from rural communities to mining in Peru (world's third largest copper producer) is very strong.

In Zambia, Canadian miner First Quantum said power restrictions are likely to hit copper supplies. In September 2015, Glencore announced its idling mines in Zambia and the Democratic Republic of Congo (DRC). In a bid to cut costs, Glencore will reduce output by 400,000t at its African copper mines over the next 18

months removing 1-2% of copper supply from the market.

A copper mine in Papua New Guinea is stopping production due to dry weather.

Freeport-McMoRan announced in August it is cutting output at its El Abra mine in Chile in half and idling two US mines. Freeport also has predicted lower output at its massive Grasberg mine in Indonesia related to El Niño weather patterns.

Anglo American's Los Bronces mine in central Chile, the world's sixth-largest copper producer, is being affected by water scarcity. Anglo warned in February that the drought Chile was suffering could drop production by 4% off the company's total production for the year.

Cochilco, Chile's copper commission, states water scarcity is "a latent risk for mining in Chile".

"Lower rainfall and river flow has led the levels of aquifers and reservoirs to drop or dry up completely, giving miners fewer options. In Chile, the situation is complicated by the fact that many of its copper mines are located in the Atacama, the world's driest desert.

Output at BHP Billiton's Escondida, the world's largest copper mine, in the bone-dry Atacama, fell 2 percent in the second half of 2014, weighing on a strong operating performance." Drought in Chile curbs copper production, to trim global surplus, Reuters

Chile produces a third of the world's copper and has seen a seven fold increase in energy costs over the last ten years, also because of a severe water shortage in the high desert, where most of the country's major copper mines are located, water must be pumped from the ocean to almost 800 meters above sea level and then pumped hundreds of kilometers to the mines, of course the seawater must also be desalinated.

Capital Economics' senior commodities economist Caroline Bain has numerous concerns regarding the copper market; "Persistent strike action at Latin American copper mines as well as planned closures... El Niño's potential impact on supply... the weather phenomenon may lead to another bout of floods at mines in Latin America - heavy rains and flash floods in Chile forced several copper mines to suspend operations in March this year - and unusually dry weather in Indonesia." Capital Economics also says:

- Exports from Indonesia's Grasberg copper mine will be affected by a "lack of water in rivers to transport the metal to the port".
- Electricity shortages in Zambia are also expected to weigh on supply. As water levels at its hydropower dams dried up after a drought last month, the country's power providers announced a 30% reduction in supply to mines.

A long term structural trend in the copper mining business started to become evident

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two decades ago. Shortfalls in targeted production are now characterized by a fall in grades and recoveries as well as unexpected disruptions.

“Since 2000, average head grades for copper, without adjusting for production weightings, declined from 1.3% to 1.1% in 2012. Furthermore, the weighted average head grade for mined copper is likely less than 1% as several of the world’s largest copper mines have been in production for many decades and are now mining extremely low grade ore (less than or equal to 0.5% Cu). As head grades decline, costs rise for a given tonnage.” ~ Kitco.com, Multi-Year Global Copper Market Outlook

A Yale University study said new discoveries of copper have raised global reserves by just 0.63 percent per year since 1925 but usage has risen at 3.3 percent per year. “Copper does not often appear in a pure form in nature, the way gold forms nuggets. Instead, it combines with other elements to form stony minerals, of which the copper makes up only a small part. Fifty years ago, ore from the average pit mine was 1.5 percent copper. Most of that rich ore is gone: The average today is 0.6 percent. For every ton of copper extracted, nearly 167 tons of ore is processed and nearly 167 tons of tailings produced.” The New Bronze Age, Tim Heffernan

Country Risk

Resource extraction companies, because the number of discoveries was falling and existing deposits were being quickly depleted, have had to diversify away

serious challenge as stricter regulations, environmental concerns, and an inability to accurately predict capital expenditures (Capex) prohibitively increase project costs without removing the risk of significant political opposition...” Kitco

“National governments are no longer the only, or even in many cases the primary, source of political risk in mining projects. Political risk can stem from local governments, international and local NGOs, community groups, local competitors or any other group advancing political objectives. Similarly, the types of issues that mining companies have to deal with are quite varied. These range from having to deal with things like corruption, NGO scrutiny, maintaining a social license to operate, a lack of clarity over the implementation of mining legislation through to poor infrastructure and HIV/AIDS.” ~ Ben Cattaneo, Managing political risk in mining

The move out of “safe haven” countries has exposed investors to a lot of additional risk.

Demand and supply growth

Escondida produced over 1.1 million tonnes of copper in 2014. Yet the above chart, from Melbourne-based and Hong Kong-listed MMG, shows an expected production drop from Escondida to 800,000 tonnes in 2017. The expected production shortfall from Grasberg, in Indonesia, is equaling frightening.

“Peru has been the favoured destination

conflicts and red tape are making that goal difficult, as they have already caused the delay of \$21.5 billion worth of mining projects in recent years.

Meanwhile the Apurimac region, near the Las Bambas Project, continues to be under martial law following last months unrest (four dead and 16 seriously injured – Rick). During such period, civil liberties including freedom of association and movement are restricted, while police are allowed to enter houses without search warrants.” MMG’s gigantic Las Bambas mine in Peru to open next year despite protests, Mining.com

Of the largest 28 copper mines in the world, 21 are not expandable.

Going Solar

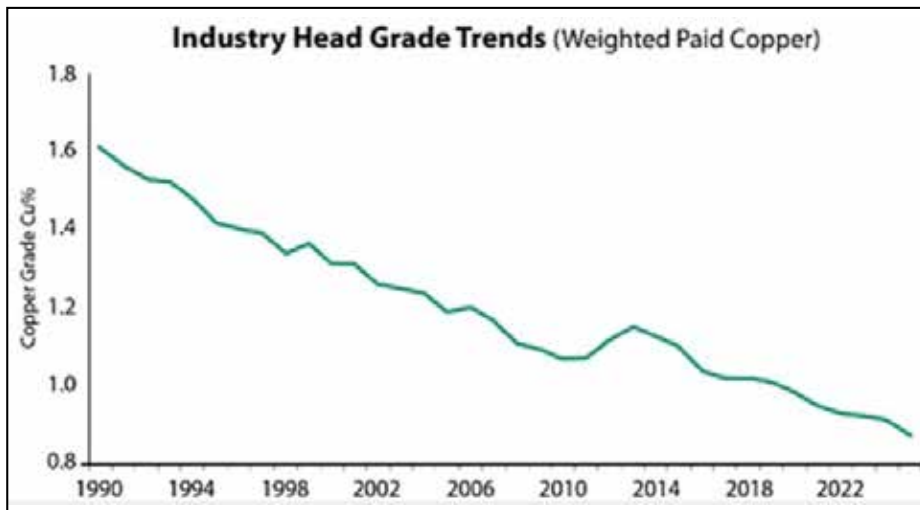
“China’s installed solar energy capacity is set to soar to 200 gigawatts (GW) by 2020 from around 36 GW in 2015, according to projections from China’s Renewable Energy Industry Association. Minerals consultancy CRU estimates 6,000 tonnes of copper is used per GW of capacity.

Wind power is projected to reach 250 GW by 2020, according to industry estimates. About 3,850 tonnes of copper is used per GW of wind capacity, according to an average of industry estimates compiled by Reuters.

These, alongside a steady increase in demand from China’s electric vehicle sector of around 200,000 tonnes over the next five years, account for more than 2 million tonnes of copper, compared with current forecasts on total copper consumption over the period of about 105 million tonnes.” China push into solar, wind power to heat up global copper markets, Melanie Burton Reuters

The U.S. Energy Information Administration (EIA) says; “Future demand for solar photovoltaics will be affected by major countries’ goals for installed solar capacity. More than 50 countries have established national solar targets, amounting to more than 350GW by the year 2020. The current top six countries in terms of total installed solar capacity – Germany, Italy, Japan, Spain, France, and China – represented 76 per cent of installed capacity in 2012, but only 61 per cent of the global target total for 2020. Reaching 350GW by 2020 would require average annual installments of 40GW from 2013 through 2020, which is equivalent to manufacturing production in 2013 and well within current PV manufacturing capability of 60GW per year.”

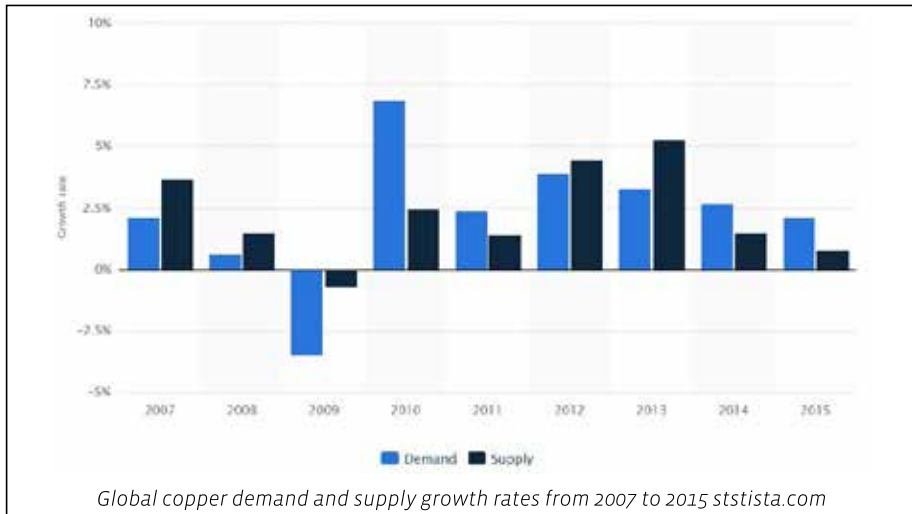
Minerals consultancy CRU estimates 6,000 tonnes of copper is used per GW of installed solar energy capacity. 350 GW by 2020 use



from the traditional geo-politically safe producing countries.

“For many developed nations within the Organization for Economic Co-operation and Development (OECD), developing significant new (Greenfield) copper mining projects has become a

for copper investment in recent years. New mines coming on stream in the country in the following months and 2016 will double production to 2.8 million tonnes, placing the country in second place globally behind Chile. According to data from the Peruvian Institute of Economics, however, social

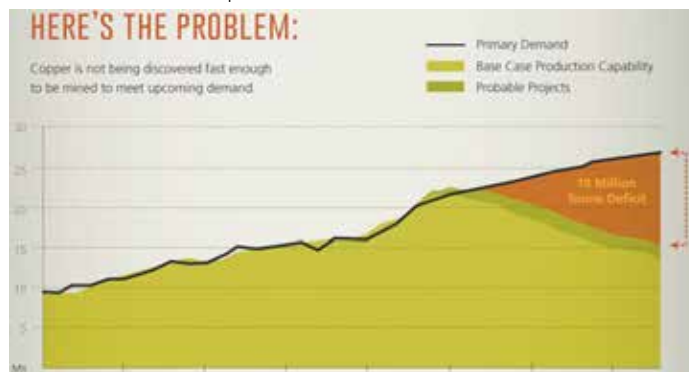


is - just for solar, not wind, not electric cars - 2.1 mil lbs of copper. That's the entire annual 2014 production of two Escondida's.

A study by Wood Mackenzie found that there will be a 10 million tonne supply deficit by 2028. That's equal to the annual production of the world's biggest copper mine multiplied by 12.50 at MMG's forecast 2017 production figures for Escondida.

The world's copper miners are cutting back production and massively curtailing exploration/development...

Houston we have a problem...



“In terms of copper the current weak copper price is largely because there has been something of a hiatus in Chinese copper purchases in line with something of a downturn in the Chinese economic growth. Note this is not a recession in the economy, but a downturn in the levels of growth seen in the recent past. The Chinese economy still seems to be growing, but at a slower rate (6.9% economic growth as of Oct 1st 2015 versus historic 9% – Rick). The analyst bandwagon has seized on the slowdown as showing that the supercycle, primarily generated by Chinese demand for industrial metals of all kinds, has thus ended. The copper article stems from analysis by senior Bernstein analyst, Paul Gait, that in fact the Chinese generated supercycle is only around one-third into its course and the Asian dragon still has

a huge amount of ground to make up on all other industrialised nations in terms of per capita metal consumption (and then comes India and Africa – Rick).

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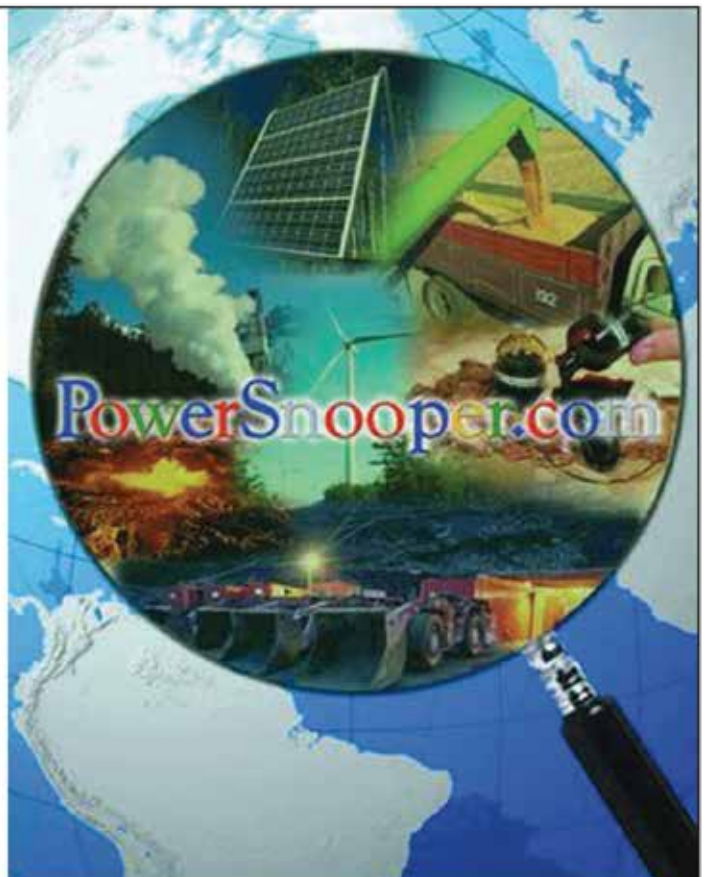
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In turn the recent slowdown in Chinese economic growth has seen metal prices fall to production costs only now being just about covered by income from sales, whereas traditionally the copper mining sector operates on the basis of a 50% premium of sales to costs. As a consequence the big copper miners are cutting back heavily on costs, leading to a drastic fall in exploration expenditures,

for such major expansions is becoming more and more difficult to come by. With exploration curtailed, and nowadays huge lead times in taking a major new mine from discovery to production (figures of 30 years are being quoted) the world is facing a major copper shortage in the years ahead.” Copper and gold – parallels in massive supply deficit scenarios, Lawrie Williams, lawrieongold.com

- The pace of new elephant-sized discoveries has decreased in the mining industry
- All the oz’s or pounds are never recovered from a mine - they simply becomes too expensive to recover

Conclusion

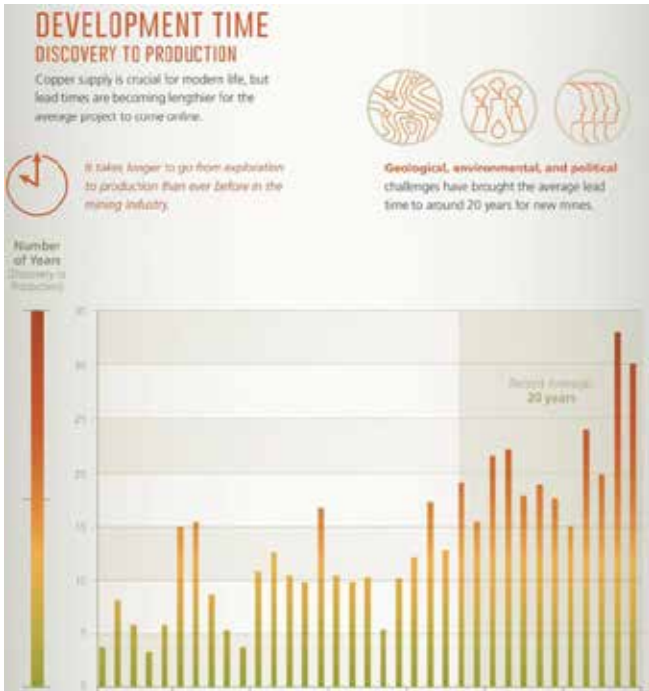
The world’s urban population is expected to nearly double in the next 30 years. Globally infrastructure is in need of major rebuilds measured in the trillions of dollars worth of capital investment. Consider electrification of the global transportation system, the growing move to solar and wind, that’s millions of tonnes of additional copper use. Throw in aging mines, resource nationalism and exploration cutbacks.

The market is not factoring in basic supply and demand elements. Copper has been oversold, the market is already very tight and we are entering into an era of copper supply deficits meaning there is no long term justification for low prices.

In a report published in early October 2015, the International Copper Study Group (ICSG) changed their April 2015 mindset. They are now saying that there will be a 130,000 mt copper supply deficit in 2016 instead of the previously forecast 230,000 mt surplus.

The ICSG also reduced its 2015 estimated 360,000 mt surplus to just 41,000 mt.

Let’s leave the last word to Commerzbank, who, in a note to their clients said; “The appraisal of the ICSG would justify significantly higher copper prices.” Indeed. Is the supply, and price, of copper and a couple of copper focused junior resource companies, on your radar screen? If not, they all should be.



Consider the following facts:

- The low-hanging mineral fruit has been picked
- Metallurgy is becoming more complicated
- We are using more and more energy to achieve the same amount of production. When does one unit of cost in, not give you the two out you need?
- There is no substitute for many metals except other metals - plastic piping is one exception
- There hasn’t been a new technology shift in mining for decades - heap leach and open pit mining come to mind but they are both decades old innovations
- Increasingly we will see falling average grades being mined, mines becoming deeper, more remote and come with

curtailment and cancellation of big new capital projects and expansions and some closures of now uneconomic existing mining operations to satisfy shareholder and institutional demands for profit maintenance, or at least recovery.

But, at the same time many of the major producing mines are seeing mill head grades running substantially above reserve grades which can only lead to declining output, without major plant expansions to counterbalance the trend. And finance

increased political risk

- Labor shortages loom, baby boomers are starting to retire en masse, and the resource-orientated talent pool is thinning out
- We’re rushing headlong into shortages of resources and the conflicts generated from a lack of security of supply
- Mine production of many metals shows us a number of similarities:
- Slowing production and dwindling reserves at many of the world’s largest mines

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