

The Crucible

Afghanistan—a view of the resource landscape

Trump, trade & commodities

Metallic hydrogen—really?



Image Credit: Shutterstock—Afghanistan



THE MMTA'S INTERNATIONAL MINOR METALS CONFERENCE 2017

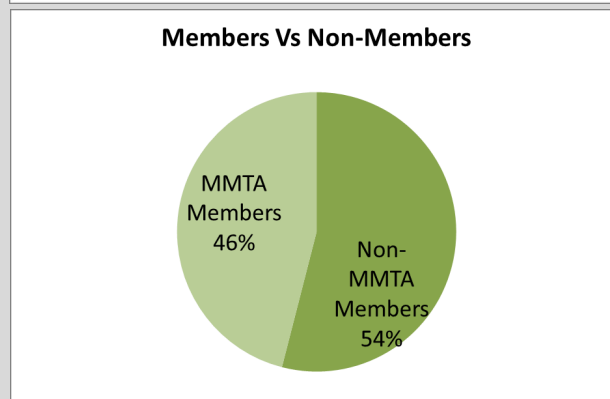
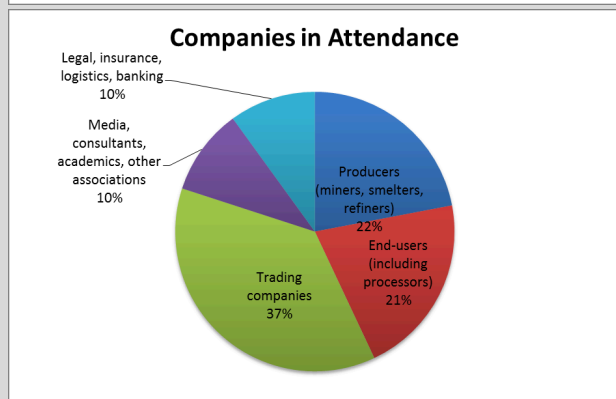
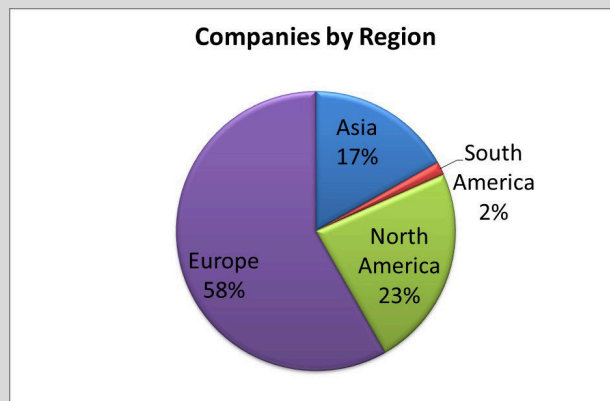
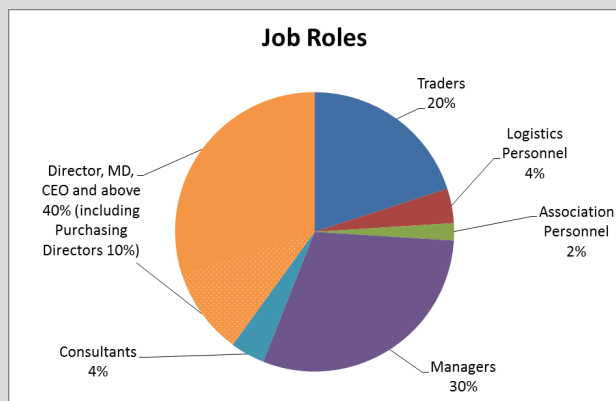
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To register, please visit www.metalevents.com or www.mmta.co.uk/event/mmta_conference_2017 or email sales@metalevents.com



MMTA Conference Golf Tournament, hosted by ICD Alloys & Metals LLC

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Registered conference delegates wishing to join this event, should contact admin@mmta.co.uk

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The MMTA is the world's leading minor metals industry organisation.



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MMTA NEWS IN BRIEF

Welcome back, Tamara, and farewell, James.

Tamara Alliot has now returned from maternity leave, and we're delighted to have her back. We'd like to thank James Walsh for his valuable contribution over the past seven months, and wish him all the very best in his next venture.

Do you want to go paperless?

As part of our commitment to sustainability, we would like to give you the opportunity to receive a digital, rather than physical, copy of the Crucible. If you would prefer to receive a pdf version from March onwards, please e-mail gina@mmta.co.uk.

Are MMTA emails ending up in your spam folder?

Please add Gina Evangelidis to your address book—gina@mmta.co.uk.

The MMTA now has a Chinese language WeChat group.

If you would like to join, to receive MMTA information in Chinese language, contact Fan Li—fan@mmta.co.uk or scan this QR code.

And finally, we will soon be contacting all members to review their entry for the Members' Directory in the Annual Review Conference Brochure—thank you for your help in making sure we have your details correct.

Yours sincerely,

Maria Cox, General Manager MMTA

欢迎Tamara回来，告别James

MMTA欢迎Tamara Alliot休完产假回来。感谢James Walsh在过去七个月对MMTA所作的宝贵贡献，祝愿他在未来的事业中一切顺利。

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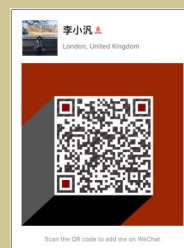
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我们将很快与所有会员联系，在年度会议审核手册中审核他们的会员名录详情，在此感谢您对确保MMTA会员信息更新工作的支持

此致。

Maria Cox 国际小金属贸易协会总经理



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by **Mu Li**, CPM Group

On the eve of the new President's inauguration, 50 MMTA members and friends met for this year's sell-out New York Dinner, to kick off the New Year. Increased optimism was definitely in evidence from many, both in terms of the first couple of weeks' business, and also in anticipation of the new Administration.

Following an animated networking reception, CPM's Mu Li offered an outlook on planned policy shifts that are expected to affect commodity markets, and what these shifts could mean for both the global economy and for commodities.

How we arrived at this point

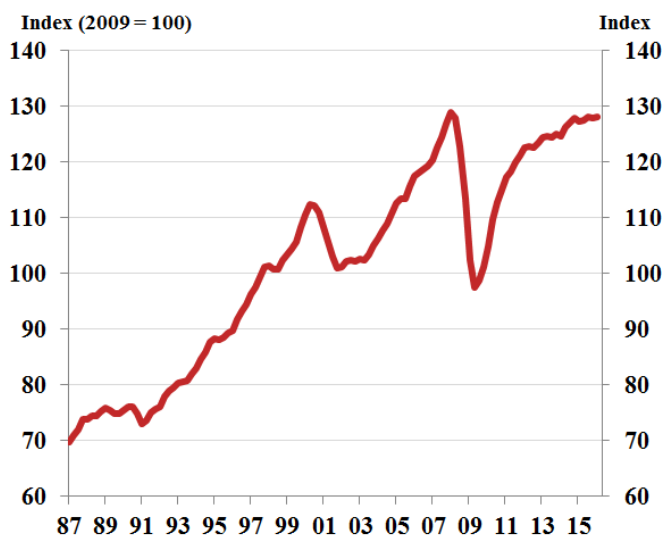
It is clear that there is dissatisfaction globally regarding political and economic conditions, and increasing income disparity and anemic growth following the Great Recession have only intensified this dissatisfaction. Recovery from the recession has been one of the slowest in history; uncoordinated monetary and fiscal stimulus around the world have resulted in rolling recessions across the developed economies, which eventually poured into the growth of developing economies, depressing growth over the past few years. Problems began in the developed economies, and while the larger developing economies were able to shelter themselves from the problems initially, the ongoing weakness of developed economies finally began to have a negative effect on developing economies as well. In developed economies, cautious use of debt by consumers and lackluster wage growth are all factors that weighed on economic growth. These factors have led to increasing frustration and anger, resulting in votes for change in both the UK (Brexit) and US (Trump). In CPM's opinion however, this anger and frustration are misplaced, with structural changes in developing economies, such as aging populations with different consumption patterns, and the increased use of computers to replace low skilled labor, being important factors that have been underestimated. Globalisation, they believe, has helped raise large swathes of the global population into the middle class.

"In industrialized economies structural changes and aging populations suggest relatively slower growth is the norm to be expected. Capital constraints in emerging economies resulting from capital flows out of these countries into Western financial markets are likely to intensify going forward."

Surplus labor will be a major global problem now and going forward

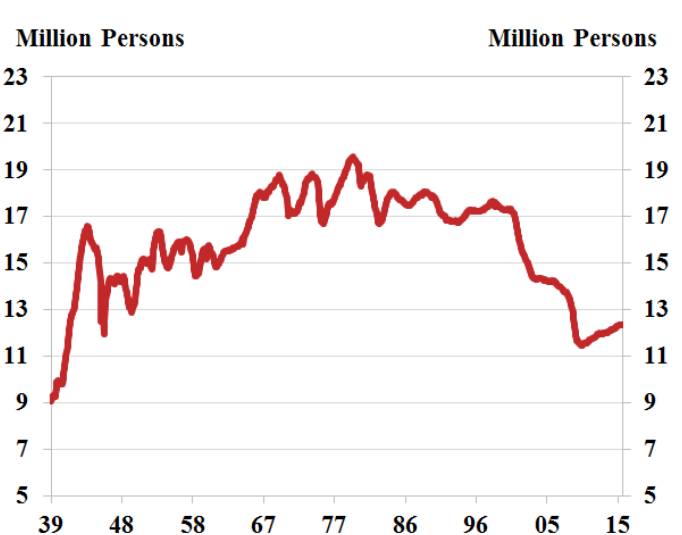
The U.S. manufactures 60% more today than it did in the late 1980s, but uses 30% fewer workers. There are genuine fears that the next wave of technological innovation will be even more devastating to jobs, replacing computer-assisted manufacturing with fully computerized manufacturing; this transition has already begun.

U.S. Manufacturing Output



Source: Bureau of Labor Statistics

U.S. Manufacturing Employment



Source: Bureau of Labor Statistics

Note: U.S. Manufacturing Output Through Q1 2016; U.S. Manufacturing Employment Through Q2 2016.

Monetary policy, fiscal policy, government deficits and debt

Global monetary policy has prevented the world from slipping into a depression. However, low, even negative, rates are squeezing risk premiums and hindering lending. There is evidence that savings are rising to offset low rates. This has resulted in inflation of risk assets strengthening the US dollar and creating capital constraints in developing economies.

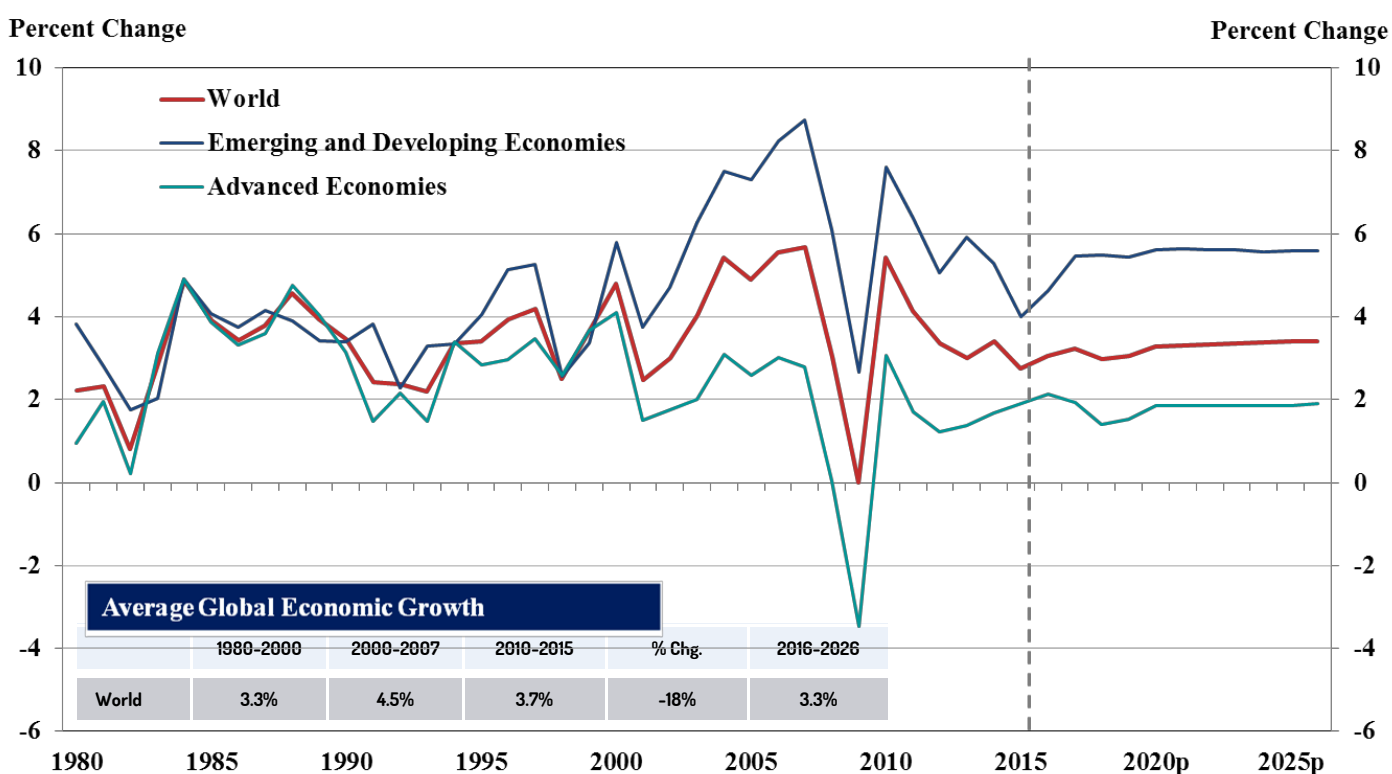
Fiscal policy needs to work in conjunction with monetary policy, but a lack of coordination within government and between governments has prevented this. Growing government deficits, due to rising healthcare and pension costs, have increased government debt. In turn, growing government debt has weighed on productive investments and wage growth.

Global growth forecast to remain lackluster

“Sub-par global economic growth, characterized by high unemployment, low inflation and interest rates. Advanced economies’ growth weighed down by structural changes, surplus labor, and ageing populations. Developing economies are likely to face capital constraints, as they are also weighed down by slower growth from advanced economies.”

Real Gross Domestic Product

Annual, Projected Through 2026



Source: CPM Group

Campaign policies relevant to commodity markets

CPM identify several key campaign policies that, if implemented, will have an impact on commodity markets, including—in the area of trade—the imposition of tariffs, the renegotiation of NAFTA, a reevaluation of the EU/Britain US relationship, and rejection of the Trans-Pacific Partnership, from which the new President has already removed the U.S. The new Administration has also advocated a fiscal stimulus, as well as a curb on both illegal immigration and legal immigration for temporary, low skilled workers. The Trump Administration has also signalled a change in direction on both climate change and energy policy.

Indeed, since taking office, the White House has placed a temporary ban on new rule-making by federal agencies, after which the removal of two current regulatory rules will be required to be removed for any new rule implemented. The Administration has already started its efforts to roll back and repeal Dodd Frank legislation, which include its non-conflict materials regulations, although it is not yet clear how soon, or how much of the legislation gets changed, and to what extent the non-conflict materials regulations will shape up.

Ability to implement

Following the Inauguration, President Trump did not waste any time getting started on his mission, however CPM predicts that some of the tough actions on trade, infrastructure, immigration and climate change will face hurdles in Congress, regulatory agencies and in the

courts. Differences in policy approach between the President and his cabinet picks will also need to be resolved.

What do these policies mean for the world economy?

CPM anticipates that trade restrictions in the form of tariffs, the break up of existing trade pacts, and abstaining from making new pacts are likely to weigh on global economic growth. They point to a strong correlation between trade, GDP, and employment. Global Trade accounted for around 58% of Global GDP in 2015. CPM sees the impact of trade restrictions on both domestic and global growth being a negative one.

Across-the-board tariffs are, they predict, in practice impossible. There exists the danger that import tariffs will hurt U.S. manufacturers, who draw from global supply chains. CPM also warns that in the event of trade restrictions being implemented, there may be a risk to imports of critical raw materials. If, however, barriers for U.S. exports to overseas markets are brought down, this could support growth.

Fiscal Stimulus

A fiscal stimulus has been promised by President Trump, to come in the form of tax cuts—particularly on higher earners and corporations—and infrastructure spending. There is unlikely to be great resistance from Congress to tax cuts, CPM believes, and fears, that much of the additional money will not be invested in U.S. business and jobs, but would instead end up being invested in the stock market, corporate stock buy-backs, higher yielding speculative bonds, Treasuries, and offshore holdings, which are estimated at around \$21 trillion. In their view, the impact of tax cuts would be inflation of risk assets and a stronger dollar.

With regard to infrastructure spending, while a promising prospect for stronger growth, plans for how to finance the spending are yet to be announced. CPM warns that if infrastructure spending is pursued with deficit financing, it will further add to U.S. debt, which would meet opposition in Congress. On the other hand, private capital investments into infrastructure projects could be made possible by removing policy bottlenecks or offering tax incentives.

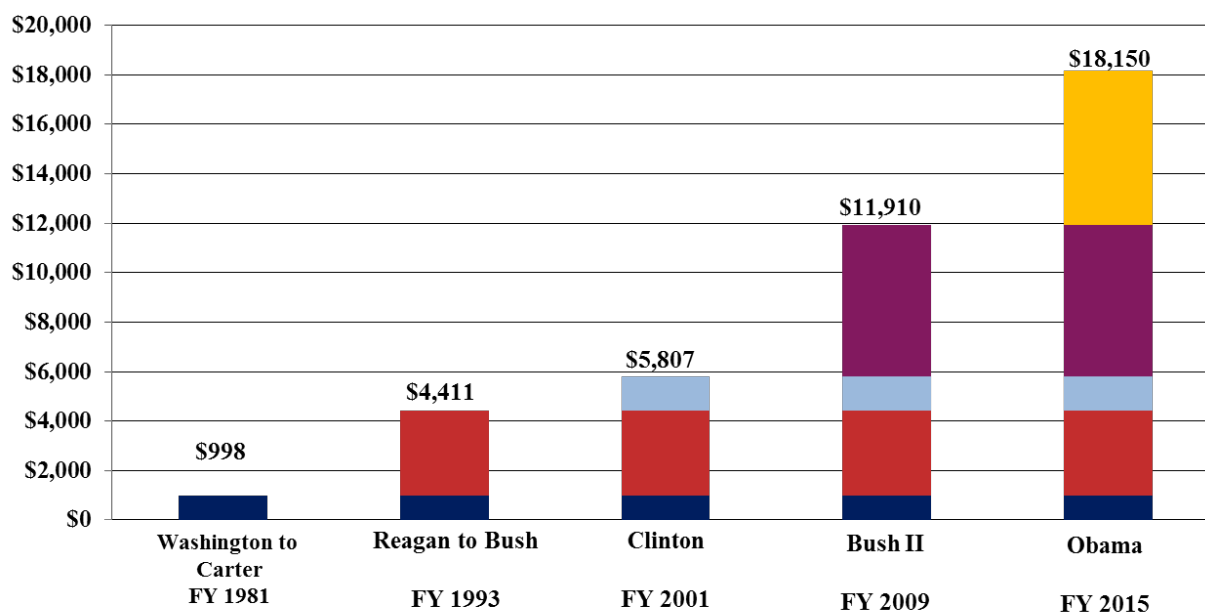
The Growth of Federal Debt

CPM's assessment is that with governments continuing to crowd consumers, small businesses, and banks out of the credit market, the current misallocation of credit to less productive applications retards general economic growth, which in turn leads to a further extension of the era of low interest rates. At some point this should revert to more typical interest rate market patterns, but the reversion could be many years away. When it occurs, it could bring with it increased economic volatility, unless central banks and finance ministers are far more adept and agile in managing the transition than seems likely at present.

U.S. Federal Government Total Debt

Billions of U.S. dollars, end of fiscal year

Total Debt



Note: Each figure is for the end of the last fiscal year, the budget of which was generated by the last President listed for each period. The fiscal 2015 figure is through July, the last period which data is available.

Source: CPM

Immigration, climate change and energy

Immigration has been a major focal point of several recent campaigns. In the US, President Trump has already increased deportation of illegal immigrants, and is working on reducing or eliminating temporary/seasonal agricultural work visas. And indeed, one of his first acts

as President was to implement a travel ban on those entering the country from several countries. He is also implementing a requirement that all jobs at all skill levels in the U.S. be offered to U.S. citizens or permanent legal residents before being given to a foreign worker. Outside of the U.S., the Brexit vote was largely predicated on a desire to control immigration into the UK, not to mention the impact this issue is likely to have in elections across Europe later in the year.

The impact of cuts to low skilled and seasonal immigration in the U.S. is, in the view of CPM, initially expected to drive up the cost of labor. In the longer term, however, these cuts will arguably encourage and accelerate the use of machines and computers, where possible, to replace those lower skilled jobs, so not necessarily resulting in job creation.

On the environment, there are plans to cancel the U.S. commitment to the Paris Agreement and U.S. Climate Change Fund, as well as lift restrictions on U.S. energy production.

CPM's conclusion is that these policies, if fully implemented, are likely to have a temporary positive impact, but over the longer term are expected to have a neutral to negative impact on both U.S. as well as global GDP. It should be noted that the impacts stated above are based on the potential to deliver on campaign promises. In reality, as previously mentioned, most of these campaign promises will face significant hurdles at various levels before becoming law.

What These Policies Mean for the Commodities Markets

The U.S. dollar is expected to remain firm and possibly rise in the future, with increased demand for dollars in response to a U.S. fiscal stimulus. The currency is supported by Federal policy, in contrast to other major central banks' loose monetary policies. In addition to strength in the dollar, for the above-mentioned reasons, key exporters to the U.S. may potentially need to devalue their currencies to overcome U.S. import tariffs, if these are indeed introduced. Figures suggested include 45% on imports from China; 35% on imports from Mexico; and 20% on all imported goods. On the other hand, a stronger dollar will make exports from the U.S. relatively uncompetitive, opening opportunities for other exporting countries.

Energy Commodities

On the supply side, CPM predicts that supply of energy commodities is likely to increase as America works on removing production restrictions presently in place. This domestic increase is likely to be matched by other countries, who are unlikely to reduce supply in any meaningful way for fear of losing market share, not to mention the fact that fuel is often the largest revenue generator for some of these countries.

CPM points to three factors impacting demand: firstly, technical innovations aimed at reducing per unit energy usage and shifting the source of required energy to electricity indicate a move away from oil and coal and towards renewables; secondly, climate

change agreements are likely to proceed with or without the U.S.; and thirdly, demand will be driven by global GDP, which is expected to be lackluster.

Base and Specialty Metals

The supply of base and specialty metals is likely to be vulnerable to short-term production cuts and long-term restrictions in capacity. It is likely, in CPM's opinion, to be market factors, as opposed to trade restrictions, which will limit supplies. They point to the fact that a number of metals (Pb, Zn, and some specialty metals) have relatively thin stock buffers.

On the demand side, technical innovations will be a factor; the substitution of specialty metals can happen over time, particularly at higher price levels. New applications, including in batteries, solar power generation, LCD etc will see the growth of certain specialty metals. Additionally, upgrades in residential consumptions of specialty steels in developing economies may drive demand higher over the next decade.

Recovery of the oil & gas sector, and capital spending on related infrastructure are also highlighted as being key to near-term growth.

The MMTA warmly thanks Mu Li and CPM for taking the time to share its outlook with MMTA members. It would not be an exaggeration to say that there was an animated response from the room from attendees with a more positive view of future developments under President Trump, and the key appears to be the balance between campaign rhetoric and the laws ultimately enacted following the scrutiny of government and the courts, not to mention the impact of both international and domestic public pressure.

CPM Group (www.cpmgroup.com) has pioneered fundamental and econometric research in commodities with a focus on specialty metals. CPM Group's research program was started in the 1970s, based on the view that metals and other commodities markets were highly asymmetrical, poorly reported and understood by many market participants, and often clouded by misinformation and false assumptions about the nature of these markets. CPM Group uses micro-economic analysis of the individual components of each commodity market, wedded with a top-down macro-economic analysis of the global trends affecting these markets.

Mu Li is CPM Group's Director of Base and Specialty Metals Research & Senior Precious Metals Analyst. Ms. Li has researched extensively on markets and industries of base, specialty, and precious metals, focusing on supply and demand fundamentals, policy developments, as well as investment-related issues related to these sectors. She manages CPM Group's research projects related to base and specialty metals, and regularly contributes analysis on commodity markets and industries, the financial markets, and economic conditions. Ms. Li was previously a reporter at Platts, a division of McGraw Hill Financial, where she covered businesses and regulations in the energy and metals sectors, and has been a White House Correspondents Association scholar.

Warehouse inspections— it's all in the detail

By **Ton Schox**, Cunningham Lindsey Marine

Cunningham Lindsey Marine independently inspects the approved warehouse locations on application for the MMTA approval and every two years after that (<https://www.mmta.co.uk/warehouse-registration/>). The inspections are coordinated through the Rotterdam office on agreed upon fee rates and reporting templates.

Typical warehouse risks

A marine surveyor travels all around the world and comes across many situations. When comparing these situations to the conditions of the warehouses in Europe, they can quite often be different! The Warehouse committee asked me to share some of our findings as observed during our surveys. A non metal-related example not involving an MMTA member has been taken.

On one occasion I was asked to conduct an investigation into numerous containerized shipments of bags of tea. These containers showed a considerable short weight upon unloading at the various final destinations. As the common factors all pointed in one direction, my investigations led me to the country of origin, Kenya, and in particular to a couple of warehouses in Mombasa.

One of the investigations was to look at the logistic process of the various warehouses.

As a surveyor you are always have a kind of sixth sense for special circumstances. I noted during the inspections that in general the warehouses were in a good condition, well-constructed and properly roofed. I was shown one of the warehouses, which at one side was quite full with palletized bags of tea, stacked two pallets high. The tea was packed either in multiple paper or jute bags, as illustrated below..



In one of the other corners of the shed, vacuum packing of the tea was in full progress by means of sealing the bags. Packing material was stacked nearby!



The sealing process emitted heat and no firefighting equipment was present on site.



Just to kill some time, I went to one of the other warehouses and after walking around I noticed some irregularities.

Empty pallets and a lot of other debris were stacked against the outside of the warehouse wall surrounding an inoperable hose.

What would happen in a case of fire?

Inside, the warehouses were quite full with palletized bags of Kenyan tea.

Unfortunately these pallets were obstructing any firefighting equipment present in the shed. No safe corridors had been made. We rolled out one of the hoses to see if any water would come out, however this was not the case as the system was not connected to the public water system.



The fire extinguishers present were either over date or incomplete.

We discussed these shortcomings with the warehouse manager. It must be said that the building itself was in a good condition and the inside was kept clean. The maintenance of the firefighting equipment was carried out by a third party and the warehouse manager did not realize in what state the equipment was. Also the lack of water took her by surprise.



The cameras recorded typical warehouse activities including the loading operations of the containers. In this case, the shortages were noted at final destination after shipping and transport to final destination.



By the time the containers were opened up and the shortages ascertained, the recording from the loading operations had already been automatically deleted.

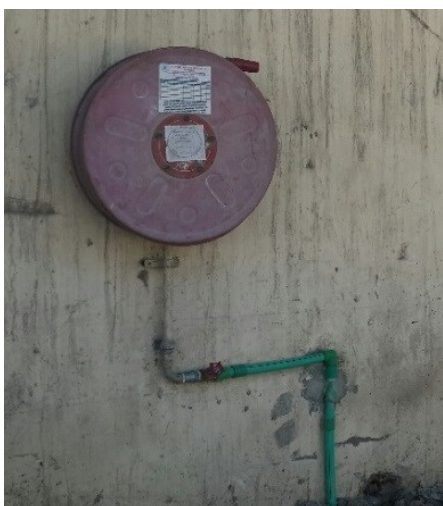
On paper these warehouses were considered to be a "good" risk, however in practice this was not the case. A 'quick scan' is quite often sufficient to improve the risk.

And the shortages?

Later we discovered that the shortages, as ascertained at final destination, had occurred during the stay of the containers at the Mambas terminal.



After our visit the warehouse manager immediately started to change things, and the photos below show a completely changed warehouse with all the equipment in good working condition.



In connection with the investigations, we also discussed the presence of the surveillance cameras. Sufficient cameras were in place and they were all found to be working.

About Cunningham Lindsey

Cunningham Lindsey is a global loss adjusting, claims, management and risk solutions firm with a 100 year track record. We've worked on daily basis with people who find themselves in highly stressful situations. We are one of the largest loss adjusting and claim management companies in the world. With over 6,000 skilled staff in over 600 global offices we aim to be first on the scene, putting together specialist response teams when catastrophes happen. Right people, Right Place, Right Time!

The Specialist Practice Group Marine is the specialist entity within Cunningham Lindsey with considerable experience in providing independent, client focused services to the Marine industry. The dedicated staff of surveyors and adjusters covers all aspects of transportation risks.



Ton Schox

Head Marine Continental Europe

Marine Specialist Practice Group Leader

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Update: Implementation of the European Union Customs Code (UCC)

The European Commission and industry representatives are agreeing amendments to the legislation and the guidance. In addition, the European Commission is launching new initiatives to further modernize customs in the EU.

Key Points:

- **Importers acting in good faith:** Industry representatives are concerned that importers bear more risk under the UCC than under the previous customs code. If an importer imports goods with lower duties under a preferential arrangement, but it turns out later that the goods did not in fact have the preferential status to qualify for the lower duties, importers could plead “good faith” to reduce their liability under Article 220(2)(b) of the previous customs code, a provision not available within the UCC. Industry representatives argue that this puts too much risk on importers. So far, the European Commission has avoided amending the legislation. Instead, the European Commission suggests that there should be fewer cases of goods being imported incorrectly with preferential status under the UCC, because the exporting country’s government is involved in registering exporters under preferential arrangements.
- **Guarantees by Authorized Economic Operators (“AEOs”):** The UCC allows AEOs to post lower guarantees, but industry representatives are concerned that this provision is not working well. Industry representatives have argued that Article 84 of the UCC Delegated Act should be amended. The European Commission has indicated that it will aim to resolve this by the end of 2017, and will also publish guidance on guarantees.
- **New system for the Generalized System of Preferences (“GSP”):** The EU launched a new system for GSP origin certification in January 2017. The system, called “REX”,

will allow exporters to self-certify origin for GSP with statements of origin. This system will replace the “Form A” certificate of origin. The system will be phased in from 2017–2019 for different sets of countries. The 2017 set includes India, Kenya, Bhutan, Comoros, Laos, Nepal, and a number of other countries.

· **Definition of “exporter”:** After long discussions between the European Commission and industry representatives, the European Commission has finally agreed to amend the definition of “exporter” in the UCC. Industry representatives have been concerned that the current definition in the UCC causes problems for transporters that do not own the goods that they are transporting.

Forward-looking initiatives

· **Further modernization and integration of customs:** The European Commission has issued a paper on “Developing the EU Customs Union and its governance”, which sets out a vision for EU customs with greater digitalization, better coordination between Member States, and integrated border management.

· **Excise and customs:** The European Commission has launched a Project Group on excise and customs cooperation, as the legislation on excise and customs matters have not been well coordinated so far.

· **VAT and customs for small consignments:** The European Commission has also launched a Project Group on Low Value Consignments, with a focus on facilitating VAT and customs issues for postal and courier services.

Regarding the Wortmann case, the European Commission has indicated that the court’s decision was very clear – Member States must pay interest on repayments of duties levied in contravention of EU law, and the interest must be charged from the time of payment of the duties. There is currently no plan to amend the UCC in light of this case, since the court hadn’t relied on the text of the UCC, and so it was not clear whether there are any implications for the UCC.

THE Cobalt Conference

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Have scientists finally been able to make metallic hydrogen?

By **Tamara Alliot**, MMTA

Last month, Harvard University scientists claimed in the journal *Science* to have produced metallic hydrogen, a substance never before seen on earth. This marks the pinnacle of a theory first put forward in 1935 on theoretical grounds by Eugene Wigner and Hillard Bell Huntington.

Metallic hydrogen could revolutionise technology, enabling the creation of super-fast computers, high-speed levitating trains and ultra-efficient vehicles as well as dramatically improving almost anything involving electricity, due to its super-conducting properties. Approximately 15% of energy is lost to dissipation during transmission, so if you could make wires from metallic hydrogen, electrical grid efficiencies would be massively improved.

Humanity's desire to explore outer space could also be one step closer. Converting the metallic hydrogen back to its molecular form would release a huge amount of energy, making it the most powerful propellant ever, four times more powerful than the best available today. This would revolutionise rocket technology and allow humans to travel further and faster than ever before.

But first, the scientists need to establish whether the metal is stable at normal pressures and temperatures. For the moment, the metal is trapped between the grip of the two diamonds used in an anvil to crush the liquid hydrogen at a temperature far below freezing. The pressure used was more than that found at the centre of the earth.

The scientists plan to ease the pressure on the metallic hydrogen over the next few weeks with the hope that similar to the way diamonds form from graphite under intense heat and pressure, but remain diamonds when that pressure and heat is removed, the hydrogen will stay metallic in normal conditions.

The scientists say that they have confirmed the substance is metallic hydrogen by performing various measurements, and due to its shiny metallic appearance. Others, however, believe that the substance may be something else.

Convinced?

Those casting doubts on the discovery say that the substance could easily not be metallic hydrogen at all.

In October 2016, the Harvard researchers first posted their work to arXiv, a website that collects scientific studies before they are published through peer-reviewed journals. At that point it attracted huge amounts of criticism from other scientists who argued that it was based on a mistake. Nonetheless the paper went on to be published in *Science* in January.

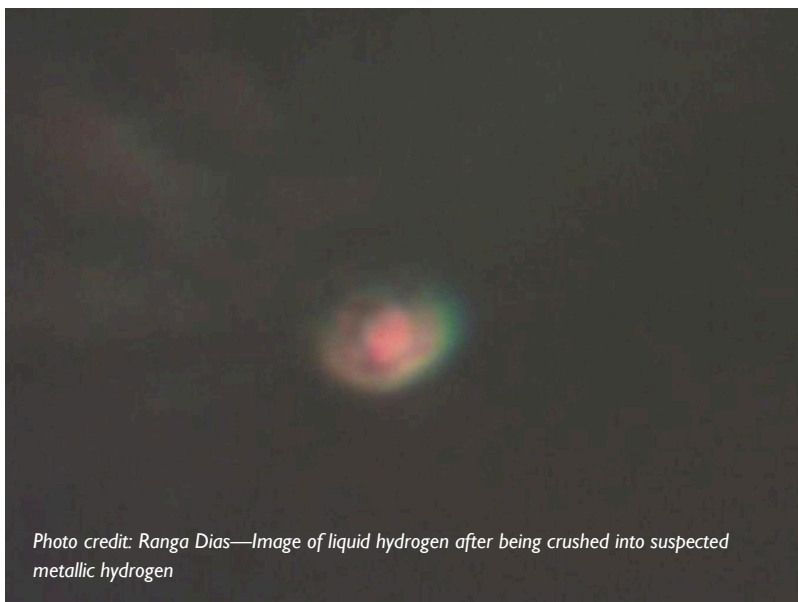


Photo credit: Ranga Dias—Image of liquid hydrogen after being crushed into suspected metallic hydrogen

One problem is that the scientists cannot show off the piece of metal because it is still stuck between the jaws of the anvil, and they say that removing it might cause it to disappear entirely. Though the Harvard researchers believe that the material they can see crushed in the anvil is metallic hydrogen, without access to the sample, this cannot be a definitive conclusion.

Other experts have said that the shininess may be something else entirely, like aluminium oxide, which is known to coat the diamonds that sit in the anvil and may become shiny under high pressure.

Even before this particular paper was criticised, other researchers have criticised the lab's approach and methods, arguing that it could lead to false positives.

Scientists have also questioned why the team published their results before they have taken the material out of the anvil, but the researchers claimed in press materials that they had done so in order to publicise their "breakthrough event", and that further experiments would shed more light.

The criticisms could be down to scientific jealousy or genuine concerns – time will tell!



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LETTER FROM NORTH AMERICA — with a view of Afghanistan's resource landscape

By **Tom Butcher**, Independent Consultant

Dear Members

Ah, the joys of living in New York! When I first came over here to live in the early '90s, you knew that winter was actually going to be winter. It would be absolutely freezing for weeks on end. But crisp and dry. One day I remember that it went down to four degrees below zero – Fahrenheit. That's -20°C! However, today (written on February 7th) it's 37°F, tomorrow it's forecast to be 60°F, and on Thursday we're expecting snow. As is often said here: "Go figure!"

Anyway, moving from the cold here to somewhere else cold, I thought I might take the opportunity of revisiting Afghanistan and refreshing my memory (and, maybe, yours) about its mineral resources. And, in particular, any minor metals resources it might have. The review will, perforce, be selective, as I cannot claim a great degree of knowledge, even though I did spend some time in the area in the mid-'80s.

In my research, I was reminded of some of the more dramatic headlines that appeared in the media back in 2014. For example, this one from *NBC News*: "Rare Earth: Afghanistan Sits on \$1 Trillion in Minerals". According to the NBC report, US researchers flying aerial surveys were able to determine that "Afghanistan may hold 60 million tons of copper, 2.2 billion tons of iron ore, 1.4 million tons of rare earth elements such as lanthanum, cerium and neodymium, and lodes (sic?) of aluminum, gold, silver, zinc, mercury and lithium."

The presence of significant deposits of copper was certainly in no doubt. Back in 2006, two Chinese state owned companies were granted a 30-year lease (with an estimated future investment of \$3 billion) to develop the Mes Aynak deposits, thought to be some of the largest in the world. Because of safety concerns (and the discovery of an ancient Buddhist site), nothing has yet come of the deal. And although CNBC reported in December last year that China had been given the "all-clear" by the Taliban to mine the copper, it remains to be seen what happens. (The reserves at the Aynak, Jawhar, and Darband deposits also contain both cobalt and silver.)

In 2011, five years after the Mes Aynak deal, the rights to mine iron ore in three of the four blocks in central Afghanistan's Hajigak region were acquired by seven Indian companies. According to *The Hindu* in early 2016: "They were slated to invest \$10.8 billion for setting up steel and power plants, besides mining the deposit. However, in view of the security risks in wake of the withdrawal of U.S. troops, there was a go slow on the project along with a reported scale-down of

investments by a recession hit industry." No iron ore has yet been mined.

Of more interest to MMTA members, however, may be some of the other metals also mentioned in the *NBC News* report. According to the Afghanistan Investment Support Agency (often quoting the US Geological Survey), apart from extensive gold deposits, the country also boasts: beryllium deposits in the eastern provinces of Nangarhar and Laghman; rare earths and uranium in Helmand province; and, lithium deposits (in the form of lithium chloride in dry lake beds), located in Herat and Nimroz provinces in the west of the country and in Ghazni province in east central part of the country. And hard rock lithium deposits are to be found in the northeastern provinces of Badakhshan, Nangarhar, Uruzgan, and Nuristan.

Amongst the list of mineral areas of interest identified by the USGS in its surveys in the country between October 2009 and September 2011 were the following:

Area of Interest	Main Commodities	Minor or Possible Commodities
Bakhud Fluorite	Fluorite	Zinc, lead, silver, antimony, and barium
Chaigai Hills Travertine	Travertine (onyx)	Copper, gold, and molybdenum
Daykundi Tin-Tungsten-Lithium	Tin, tungsten, lithium	Copper and lead-zinc
Dusar-Shaida Copper-Tin	Copper, tin	Lead, zinc, and tungsten
Kharnak-Khanja Mercury	Mercury	Antimony, arsenic, gold, and silver (?)
Katawas Gold	Gold, silver (?)	Mercury and tungsten (?)
Khanneshin Carbonatite	REE, uranium, and phosphorus	Thorium, barium, strontium, and limestone
Nuristan Pegmatite	REE, lithium, tin, and mica	Tantalum and niobium

Source: US Geological Survey

In the context of what is happening in the world of batteries and electric vehicles, perhaps one of the more interesting metals mentioned above is lithium. The initial analysis of just one area in the province of Ghazni indicated that deposits there may be as large even as those in Bolivia, which has some of the largest lithium reserves in the world. However, it remains to be seen what actually will happen with the country's lithium reserves – if anything.

Quite fortuitously, I had the great pleasure of seeing my very good friend Ted Callahan the other day. It was especially serendipitous, as Ted (Dr Callahan) has lived for most of the last 11 years in Afghanistan and knows the country extraordinarily well. When I ask him what he thought was the greatest hurdle to mining just about any of the country's subsurface mineral resources, he answered simply: "The absence of any rule of law." And that I could take this as broadly or as narrowly as I saw fit – it was all the same.

As interesting illustrations of this, he mentioned two recent incidents. The first occurred last Monday at a lapis lazuli mine located



Image Credit: Shutterstock—Afghanistan

in the Sar-e Sang area in Kuran Wa Munjan district (that's in Badakhshan province). Miffed that, after four days of negotiations with the mine owner (one Qomandan Malik) – over demands for either 40% of the income of the mine on a monthly basis or that he should leave the mine – no agreement was forthcoming, the local deputy provincial shadow governor (i.e. Taliban local leader), together with 300 local militants, attacked the mine. The latest news I have is that the locals armed themselves and beat off the attack. A follow-up attack by the Taliban does not appear imminent. So, that's an example of what can happen if you are operating in an area where the Taliban are present.

The second was reported by Reuters this last Friday (February 10th): "Eleven years after its first big mining privatization [for cement], the Afghan government has abruptly cancelled the contract, highlighting the unpredictable nature of investing in a sector seen as crucial to the country's economic development." Perhaps more telling from a "rule of law" angle were the words from an Afghan official who said: "The ministry doesn't have the mechanism for registration, it doesn't have the mechanism for inspection." So, on the other side of the coin, even if you do deal with the government (rather than the Taliban – somewhat anodyne termed an AOG or Armed Opposition Group), there's absolutely no assurance that things will work out either.

Perhaps as additional words of warning, what Gerard van Bohemen, Chair of the [UN] Security Council Committee established pursuant to resolution 1988 (2011), in his letter of October 4, 2016 said are

particularly illuminating: "Illegal mining remains a significant income stream for the Taliban. ... [T]he Taliban remains directly involved in the sector by controlling illegal mining sites, in particular in the south and east of the country, by extorting sums from licensed Afghan mining operations and by acting as a transport facilitator for other illegally extracted natural resources."

It would appear, therefore, to me anyway, that, at present, on a very simplistic level, you're damned if you do, and you're damned if you don't do things through "official" channels in Afghanistan. Who knows, though, how long things will take to sort out.

Maybe it's worth leaving the last words on how things are in the country to General John W. Nicholson, Commander US Forces – Afghanistan, ones that he gave before the Senate Armed Services Committee on the Situation in Afghanistan on February 9th: "The current security situation is a stalemate where the equilibrium favors the government". Hmmm.

If over the coming months I come across anything further of interest, I shall make sure to keep you all updated. And if you want a considerably more nuanced (and in-depth) view of how things currently stand, I'd be more than happy to put you in contact with Ted – he's the one who knows.

In the meantime, though, as always, I remain, with best wishes from New York.

Yours,

Tom Butcher, February 13th, 2017

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